Hamiltonian matrix in GVB-BCCC formula derivation

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$\langle (A_1, B_1)|\hat{H}|()\rangle =$

$+\frac{1}{4}\langle 0^A 0^B|\hat{g}|0^A 0^B\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle$

$+\frac{1}{4}\langle 0^A 0^B|\hat{g}|0^A 0^B\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 0^B\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle$

$+\frac{1}{4}\langle 0^A 1^B|\hat{g}|0^A 1^B\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle$

$+\frac{1}{4}\langle 0^A 1^B|\hat{g}|0^A 1^B\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle$

$+\frac{1}{2}\langle 0^A 1^B|\hat{g}|0^A 1^B\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle$

$+\frac{1}{4}\langle 1^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle$

$+\frac{1}{4}\langle 1^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle$

$+\frac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle$

$+\frac{1}{4}\langle 1^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle$

$+\frac{1}{4}\langle 1^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle$

$+\frac{1}{2}\langle 1^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle$

$+\frac{-1}{4}\langle 0^A 0^B|\hat{g}|0^B 0^A\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle$

$+\frac{-1}{4}\langle 0^A 0^B|\hat{g}|0^B 0^A\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle$

$+\frac{-1}{4}\langle 0^A 1^B|\hat{g}|1^B 0^A\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle$

$+\frac{-1}{4}\langle 0^A 1^B|\hat{g}|1^B 0^A\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle$

$+\frac{-1}{4}\langle 1^A 0^B|\hat{g}|0^B 1^A\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle$

$+\frac{-1}{4}\langle 1^A 0^B|\hat{g}|0^B 1^A\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle$

$+\frac{-1}{4}\langle 1^A 1^B|\hat{g}|1^B 1^A\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle$

$+\frac{-1}{4}\langle 1^A 1^B|\hat{g}|1^B 1^A\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle$

$+\frac{-1}{4}\langle 0^B 0^A|\hat{g}|0^A 0^B\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle$

$+\frac{-1}{4}\langle 0^B 0^A|\hat{g}|0^A 0^B\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle$

$+\frac{-1}{4}\langle 0^B 1^A|\hat{g}|1^A 0^B\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle$

$+\frac{-1}{4}\langle 0^B 1^A|\hat{g}|1^A 0^B\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle$

$+\frac{-1}{4}\langle 1^B 0^A|\hat{g}|0^A 1^B\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle$

$+\frac{-1}{4}\langle 1^B 0^A|\hat{g}|0^A 1^B\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle$

$+\frac{-1}{4}\langle 1^B 1^A|\hat{g}|1^A 1^B\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle$

$+\frac{-1}{4}\langle 1^B 1^A|\hat{g}|1^A 1^B\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle$

$$+\tfrac{1}{4}\langle 0^B 0^A|\hat{g}|0^B 0^A\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 0^B 0^A|\hat{g}|0^B 0^A\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle$$

$$+\tfrac{1}{2}\langle 0^B 0^A|\hat{g}|0^B 0^A\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 0^B 1^A|\hat{g}|0^B 1^A\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 0^B 1^A|\hat{g}|0^B 1^A\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle$$

$$+\tfrac{1}{2}\langle 0^B 1^A|\hat{g}|0^B 1^A\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 1^B 0^A|\hat{g}|1^B 0^A\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 1^B 0^A|\hat{g}|1^B 0^A\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle$$

$$+\tfrac{1}{2}\langle 1^B 0^A|\hat{g}|1^B 0^A\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 1^B 1^A|\hat{g}|1^B 1^A\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 1^B 1^A|\hat{g}|1^B 1^A\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle$$

$$+\tfrac{1}{2}\langle 1^B 1^A|\hat{g}|1^B 1^A\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|0^I\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|0^I\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle$$

$$+\tfrac{1}{2}\sum_I \langle 1^I|\hat{h}|1^I\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle$$

$$+\tfrac{1}{2}\sum_I \langle 1^I|\hat{h}|1^I\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|0^I 0^I\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|1^I 1^I\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle$$

$$+\tfrac{1}{2}\sum_I \langle 1^I 1^I|\hat{g}|0^I 0^I\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle$$

$$+\tfrac{1}{2}\sum_I \langle 1^I 1^I|\hat{g}|1^I 1^I\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle$$

$$+\tfrac{1}{2}\langle 0^A|\hat{h}|0^A\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle$$

$$+\tfrac{1}{2}\langle 0^A|\hat{h}|0^A\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle$$

$$+\tfrac{1}{2}\langle 1^A|\hat{h}|1^A\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle$$

$$+\tfrac{1}{2}\langle 1^A|\hat{h}|1^A\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle$$

$$+\tfrac{1}{2}\langle 0^A 0^A|\hat{g}|0^A 0^A\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|A_1\rangle$$

$$+\tfrac{1}{2}\langle 0^A 0^A|\hat{g}|1^A 1^A\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|A_1\rangle$$

$$+\tfrac{1}{2}\langle 1^A 1^A|\hat{g}|0^A 0^A\rangle\langle A_1|\hat{1}^+_\alpha \hat{1}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|A_1\rangle$$

$$+\tfrac{1}{2}\langle 1^A 1^A|\hat{g}|1^A 1^A\rangle\langle A_1|\hat{1}^+_\alpha \hat{1}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|A_1\rangle$$

$$+\tfrac{1}{2}\langle 0^B|\hat{h}|0^B\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle$$

$$+\tfrac{1}{2}\langle 0^B|\hat{h}|0^B\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle$$

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$$+\tfrac{1}{2}\langle 0^B 0^B|\hat{g}|0^B 0^B\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|B_1\rangle$$

$$+\tfrac{1}{2}\langle 0^B 0^B|\hat{g}|1^B 1^B\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|B_1\rangle$$

$$+\tfrac{1}{2}\langle 1^B 1^B|\hat{g}|0^B 0^B\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|B_1\rangle$$

$$+\tfrac{1}{2}\langle 1^B 1^B|\hat{g}|1^B 1^B\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|B_1\rangle$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 0^J\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 0^J\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 0^J\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|0^I 1^J\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|0^I 1^J\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta \hat{1}^-_\beta|J_0\rangle$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|0^I 1^J\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta \hat{1}^-_\beta|J_0\rangle$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta \hat{1}^-_\beta|J_0\rangle$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta \hat{1}^-_\beta|J_0\rangle$$

$$+\tfrac{-1}{8}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^J 0^I\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle$$

$$+\tfrac{-1}{8}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^J 0^I\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle$$

$$+\tfrac{-1}{8}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|1^J 0^I\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle$$

$$+\tfrac{-1}{8}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|1^J 0^I\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta \hat{1}^-_\beta|J_0\rangle$$

$$+\tfrac{-1}{8}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|0^J 1^I\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle$$

$$+\tfrac{-1}{8}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|0^J 1^I\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle$$

$$+\tfrac{-1}{8}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|1^J 1^I\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^J1^I\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^J0^I|\hat{g}|0^I0^J\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^J0^I|\hat{g}|0^I0^J\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^J1^I|\hat{g}|1^I0^J\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^J1^I|\hat{g}|1^I0^J\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 1^J0^I|\hat{g}|0^I1^J\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 1^J0^I|\hat{g}|0^I1^J\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 1^J1^I|\hat{g}|1^I1^J\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 1^J1^I|\hat{g}|1^I1^J\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^J0^I|\hat{g}|0^J0^I\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^J0^I|\hat{g}|0^J0^I\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^J0^I|\hat{g}|0^J0^I\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^J1^I|\hat{g}|0^J1^I\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^J1^I|\hat{g}|0^J1^I\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^J1^I|\hat{g}|0^J1^I\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle$$

$$+\frac{1}{8}\sum_I\sum_J\langle 1^J0^I|\hat{g}|1^J0^I\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle$$

$$+\frac{1}{8}\sum_I\sum_J\langle 1^J0^I|\hat{g}|1^J0^I\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^J0^I|\hat{g}|1^J0^I\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle$$

$$+\frac{1}{8}\sum_I\sum_J\langle 1^J1^I|\hat{g}|1^J1^I\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle$$

$$+\frac{1}{8}\sum_I\sum_J\langle 1^J1^I|\hat{g}|1^J1^I\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^J1^I|\hat{g}|1^J1^I\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle$$

$$+\frac{1}{4}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle$$

$$+\frac{1}{4}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle$$

$$+\frac{1}{4}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle$$

$$+\frac{1}{4}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle$$

$$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle$$

$$+\frac{1}{4}\sum_I\langle 1^A0^I|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle$$

$$+\frac{1}{4}\sum_I\langle 1^A0^I|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle$$

$$+\frac{1}{4}\sum_I \langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle$$

$$+\frac{1}{4}\sum_I \langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle$$

$$+\frac{1}{2}\sum_I \langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 0^A0^I|\hat{g}|0^I0^A\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 0^A0^I|\hat{g}|0^I0^A\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 0^A1^I|\hat{g}|1^I0^A\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 0^A1^I|\hat{g}|1^I0^A\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 1^A0^I|\hat{g}|0^I1^A\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 1^A0^I|\hat{g}|0^I1^A\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 1^A1^I|\hat{g}|1^I1^A\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 1^A1^I|\hat{g}|1^I1^A\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 0^I0^A|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 0^I0^A|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 0^I1^A|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 0^I1^A|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 1^I0^A|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 1^I0^A|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 1^I1^A|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle$$

$$+\frac{-1}{4}\sum_I \langle 1^I1^A|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle$$

$$+\frac{1}{4}\sum_I \langle 0^I0^A|\hat{g}|0^I0^A\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle$$

$$+\frac{1}{4}\sum_I \langle 0^I0^A|\hat{g}|0^I0^A\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle$$

$$+\frac{1}{2}\sum_I \langle 0^I0^A|\hat{g}|0^I0^A\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle$$

$$+\frac{1}{4}\sum_I \langle 0^I1^A|\hat{g}|0^I1^A\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle$$

$$+\frac{1}{4}\sum_I \langle 0^I1^A|\hat{g}|0^I1^A\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle$$

$$+\frac{1}{2}\sum_I \langle 0^I1^A|\hat{g}|0^I1^A\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle$$

$$+\frac{1}{4}\sum_I \langle 1^I0^A|\hat{g}|1^I0^A\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle$$

$$+\frac{1}{4}\sum_I \langle 1^I0^A|\hat{g}|1^I0^A\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle$$

$$+\frac{1}{2}\sum_I \langle 1^I0^A|\hat{g}|1^I0^A\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle$$

$$+\tfrac{1}{4}\sum_I \langle 1^I 1^A|\hat{g}|1^I 1^A\rangle\langle A_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle$$

$$+\tfrac{1}{4}\sum_I \langle 1^I 1^A|\hat{g}|1^I 1^A\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle$$

$$+\tfrac{1}{2}\sum_I \langle 1^I 1^A|\hat{g}|1^I 1^A\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle$$

$$+\tfrac{1}{4}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle$$

$$+\tfrac{1}{4}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle$$

$$+\tfrac{1}{4}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle$$

$$+\tfrac{1}{4}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle$$

$$+\tfrac{1}{4}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle$$

$$+\tfrac{1}{4}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle$$

$$+\tfrac{1}{4}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle$$

$$+\tfrac{1}{4}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle$$

$$+\tfrac{-1}{4}\sum_I \langle 0^B 0^I|\hat{g}|0^I 0^B\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle$$

$$+\tfrac{-1}{4}\sum_I \langle 0^B 0^I|\hat{g}|0^I 0^B\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle$$

$$+\tfrac{-1}{4}\sum_I \langle 0^B 1^I|\hat{g}|1^I 0^B\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle$$

$$+\tfrac{-1}{4}\sum_I \langle 0^B 1^I|\hat{g}|1^I 0^B\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle$$

$$+\tfrac{-1}{4}\sum_I \langle 1^B 0^I|\hat{g}|0^I 1^B\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle$$

$$+\tfrac{-1}{4}\sum_I \langle 1^B 0^I|\hat{g}|0^I 1^B\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle$$

$$+\tfrac{-1}{4}\sum_I \langle 1^B 1^I|\hat{g}|1^I 1^B\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle$$

$$+\tfrac{-1}{4}\sum_I \langle 1^B 1^I|\hat{g}|1^I 1^B\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle$$

$$+\tfrac{-1}{4}\sum_I \langle 0^I 0^B|\hat{g}|0^B 0^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle$$

$$+\tfrac{-1}{4}\sum_I \langle 0^I 0^B|\hat{g}|0^B 0^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle$$

$$+\tfrac{-1}{4}\sum_I \langle 0^I 1^B|\hat{g}|1^B 0^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle$$

$$+\tfrac{-1}{4}\sum_I \langle 0^I 1^B|\hat{g}|1^B 0^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle$$

$$+\tfrac{-1}{4}\sum_I \langle 1^I 0^B|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle$$

$$+\tfrac{-1}{4}\sum_I \langle 1^I 0^B|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle$$

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$$+ \tfrac{-1}{4} \sum_I \langle 1^I 1^B | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle$$

$$+ \tfrac{-1}{4} \sum_I \langle 1^I 1^B | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle$$

$$+ \tfrac{1}{4} \sum_I \langle 0^I 0^B | \hat{g} | 0^I 0^B \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle$$

$$+ \tfrac{1}{4} \sum_I \langle 0^I 0^B | \hat{g} | 0^I 0^B \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle$$

$$+ \tfrac{1}{2} \sum_I \langle 0^I 0^B | \hat{g} | 0^I 0^B \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle$$

$$+ \tfrac{1}{4} \sum_I \langle 0^I 1^B | \hat{g} | 0^I 1^B \rangle \langle B_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle$$

$$+ \tfrac{1}{4} \sum_I \langle 0^I 1^B | \hat{g} | 0^I 1^B \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle$$

$$+ \tfrac{1}{2} \sum_I \langle 0^I 1^B | \hat{g} | 0^I 1^B \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle$$

$$+ \tfrac{1}{4} \sum_I \langle 1^I 0^B | \hat{g} | 1^I 0^B \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle$$

$$+ \tfrac{1}{4} \sum_I \langle 1^I 0^B | \hat{g} | 1^I 0^B \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle$$

$$+ \tfrac{1}{2} \sum_I \langle 1^I 0^B | \hat{g} | 1^I 0^B \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle$$

$$+ \tfrac{1}{4} \sum_I \langle 1^I 1^B | \hat{g} | 1^I 1^B \rangle \langle B_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle$$

$$+ \tfrac{1}{4} \sum_I \langle 1^I 1^B | \hat{g} | 1^I 1^B \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle$$

$$+ \tfrac{1}{2} \sum_I \langle 1^I 1^B | \hat{g} | 1^I 1^B \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle$$

$$+ \tfrac{1}{4} \langle 0^A 0^B | \hat{g} | 0^A 0^B \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle$$

$$+ \tfrac{1}{4} \langle 0^A 0^B | \hat{g} | 0^A 0^B \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle$$

$$+ \tfrac{1}{2} \langle 0^A 0^B | \hat{g} | 0^A 0^B \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle$$

$$+ \tfrac{1}{4} \langle 0^A 1^B | \hat{g} | 0^A 1^B \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle B_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle$$

$$+ \tfrac{1}{4} \langle 0^A 1^B | \hat{g} | 0^A 1^B \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle$$

$$+ \tfrac{1}{2} \langle 0^A 1^B | \hat{g} | 0^A 1^B \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle$$

$$+ \tfrac{1}{4} \langle 1^A 0^B | \hat{g} | 1^A 0^B \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle$$

$$+ \tfrac{1}{4} \langle 1^A 0^B | \hat{g} | 1^A 0^B \rangle \langle A_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | A_1 \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle$$

$$+ \tfrac{1}{2} \langle 1^A 0^B | \hat{g} | 1^A 0^B \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle$$

$$+ \tfrac{1}{4} \langle 1^A 1^B | \hat{g} | 1^A 1^B \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle B_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle$$

$$+ \tfrac{1}{4} \langle 1^A 1^B | \hat{g} | 1^A 1^B \rangle \langle A_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | A_1 \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle$$

$$+ \tfrac{1}{2} \langle 1^A 1^B | \hat{g} | 1^A 1^B \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle$$

$$+ \tfrac{-1}{4} \langle 0^A 0^B | \hat{g} | 0^B 0^A \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle$$

$$+ \tfrac{-1}{4} \langle 0^A 0^B | \hat{g} | 0^B 0^A \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle$$

$$+ \tfrac{-1}{4} \langle 0^A 1^B | \hat{g} | 1^B 0^A \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle B_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle$$

$$+\tfrac{-1}{4}\langle 0^A 1^B|\hat{g}|1^B 0^A\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle$$

$$+\tfrac{-1}{4}\langle 1^A 0^B|\hat{g}|0^B 1^A\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle$$

$$+\tfrac{-1}{4}\langle 1^A 0^B|\hat{g}|0^B 1^A\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle$$

$$+\tfrac{-1}{4}\langle 1^A 1^B|\hat{g}|1^B 1^A\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle$$

$$+\tfrac{-1}{4}\langle 1^A 1^B|\hat{g}|1^B 1^A\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle$$

$$+\tfrac{-1}{4}\langle 0^B 0^A|\hat{g}|0^A 0^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle$$

$$+\tfrac{-1}{4}\langle 0^B 0^A|\hat{g}|0^A 0^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle$$

$$+\tfrac{-1}{4}\langle 0^B 1^A|\hat{g}|1^A 0^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle$$

$$+\tfrac{-1}{4}\langle 0^B 1^A|\hat{g}|1^A 0^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle$$

$$+\tfrac{-1}{4}\langle 1^B 0^A|\hat{g}|0^A 1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle$$

$$+\tfrac{-1}{4}\langle 1^B 0^A|\hat{g}|0^A 1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle$$

$$+\tfrac{-1}{4}\langle 1^B 1^A|\hat{g}|1^A 1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle$$

$$+\tfrac{-1}{4}\langle 1^B 1^A|\hat{g}|1^A 1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 0^B 0^A|\hat{g}|0^B 0^A\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 0^B 0^A|\hat{g}|0^B 0^A\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle$$

$$+\tfrac{1}{2}\langle 0^B 0^A|\hat{g}|0^B 0^A\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 0^B 1^A|\hat{g}|0^B 1^A\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 0^B 1^A|\hat{g}|0^B 1^A\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle$$

$$+\tfrac{1}{2}\langle 0^B 1^A|\hat{g}|0^B 1^A\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 1^B 0^A|\hat{g}|1^B 0^A\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 1^B 0^A|\hat{g}|1^B 0^A\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle$$

$$+\tfrac{1}{2}\langle 1^B 0^A|\hat{g}|1^B 0^A\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 1^B 1^A|\hat{g}|1^B 1^A\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle$$

$$+\tfrac{1}{4}\langle 1^B 1^A|\hat{g}|1^B 1^A\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle$$

$$+\tfrac{1}{2}\langle 1^B 1^A|\hat{g}|1^B 1^A\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_1)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|0^I\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|0^I\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^I|\hat{h}|1^I\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^I|\hat{h}|1^I\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^I0^I|\hat{g}|0^I0^I\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^I0^I|\hat{g}|1^I1^I\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^I0^I|\hat{g}|1^I1^I\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^I1^I|\hat{g}|1^I1^I\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^I0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^I0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|1^I1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|1^I1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|0^I0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|0^I0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|1^I1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|1^I1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|0^B0^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|0^B0^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|0^B0^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|0^B1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|0^B1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|0^B1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^B0^I|\hat{g}|1^B0^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^B0^I|\hat{g}|1^B0^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^B0^I|\hat{g}|1^B0^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^B1^I|\hat{g}|1^B1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^B1^I|\hat{g}|1^B1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^B1^I|\hat{g}|1^B1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^B0^B|\hat{g}|0^I0^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^B0^B|\hat{g}|0^I0^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^B0^B|\hat{g}|1^I1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^B0^B|\hat{g}|1^I1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 1^B1^B|\hat{g}|0^I0^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 1^B1^B|\hat{g}|0^I0^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 1^B1^B|\hat{g}|1^I1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I\langle 1^B1^B|\hat{g}|1^I1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|0^B0^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^B0^I|\hat{g}|1^B0^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|0^B1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^B1^I|\hat{g}|1^B1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^I|\hat{h}|0^I\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^I|\hat{h}|0^I\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^I|\hat{h}|1^I\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^I|\hat{h}|1^I\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^I0^I|\hat{g}|0^I0^I\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^I0^I|\hat{g}|1^I1^I\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^I0^I|\hat{g}|1^I1^I\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^I1^I|\hat{g}|1^I1^I\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^I 1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^I 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 0^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 0^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|1^I 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|1^I 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|0^I\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|0^I\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^I|\hat{h}|1^I\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^I|\hat{h}|1^I\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|0^I 0^I\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|1^I 1^I\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|1^I 1^I\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^I 1^I|\hat{g}|1^I 1^I\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|0^I 0^J\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|0^I 0^J\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|0^I 0^J\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 1^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 1^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 1^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 1^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^A | \hat{g} | 0^I 0^I \rangle \langle A_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^A | \hat{g} | 0^I 0^I \rangle \langle A_1 | \hat{0}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^A | \hat{g} | 1^I 1^I \rangle \langle A_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^A | \hat{g} | 1^I 1^I \rangle \langle A_1 | \hat{0}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 1^A | \hat{g} | 0^I 0^I \rangle \langle A_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 1^A | \hat{g} | 0^I 0^I \rangle \langle A_1 | \hat{1}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 1^A | \hat{g} | 1^I 1^I \rangle \langle A_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 1^A | \hat{g} | 1^I 1^I \rangle \langle A_1 | \hat{1}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^A 0^I \rangle \langle A_1 | \hat{0}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^A 0^I \rangle \langle A_1 | \hat{1}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^A 1^I | \hat{g} | 0^A 1^I \rangle \langle A_1 | \hat{0}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 1^I | \hat{g} | 1^A 1^I \rangle \langle A_1 | \hat{1}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 0^B 0^I \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 0^B 0^I \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 0^B 0^I \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 1^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 1^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 1^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 0^B | \hat{g} | 0^I 0^I \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 0^B | \hat{g} | 0^I 0^I \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 0^B | \hat{g} | 1^I 1^I \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 0^B | \hat{g} | 1^I 1^I \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 0^I 0^I \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 0^I 0^I \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 1^I 1^I \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 1^I 1^I \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 0^B 0^I \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{B_1} t_{A_1, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^I | \hat{h} | 0^I \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^I | \hat{h} | 0^I \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^I | \hat{h} | 1^I \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^I | \hat{h} | 1^I \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^I 0^I | \hat{g} | 0^I 0^I \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^I 0^I | \hat{g} | 1^I 1^I \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^I 0^I | \hat{g} | 1^I 1^I \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^I 1^I | \hat{g} | 1^I 1^I \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 0^I 0^J \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 0^I 0^J \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_0 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 0^I 0^J \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_0 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 0^I 1^J \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 0^I 1^J \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_0 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 0^I 1^J \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \sum_J \langle 1^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \sum_J \langle 1^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_0 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{1}{2} \sum_I \sum_J \langle 1^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{-1}{2} \sum_I \sum_J \langle 0^I 0^I | \hat{g} | 0^J 0^J \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+ \tfrac{-1}{2} \sum_I \sum_J \langle 0^I 0^I | \hat{g} | 0^J 0^J \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_0 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle t_{A_1} t_{B_1} t_{I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^I0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^I0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|1^I1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|1^I1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|0^I0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|0^I0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|1^I1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 0^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 0^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|1^I 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|1^I 1^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_2)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle \langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle \langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle \langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle \langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|0^I 1^I\rangle \langle I_2|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I 1^I|\hat{g}|1^I 1^I\rangle \langle I_2|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|0^I 1^I\rangle \langle I_2|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I 1^I|\hat{g}|1^I 1^I\rangle \langle I_2|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle \langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle \langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle \langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle \langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle \langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle \langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle \langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle \langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle \langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle \langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle \langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle \langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle \langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle \langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle \langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle \langle J_0|\hat{1}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle \langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle \langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle \langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle \langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle \langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle \langle J_0|\hat{1}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle \langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle \langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_I \sum_J \langle 0^I 1^I|\hat{g}|0^J 0^J\rangle \langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle \langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_I \sum_J \langle 0^I 1^I|\hat{g}|0^J 0^J\rangle \langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle \langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_I \sum_J \langle 0^I 1^I|\hat{g}|0^J 0^J\rangle \langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle \langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_I \sum_J \langle 0^I 1^I|\hat{g}|0^J 0^J\rangle \langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle \langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_I \sum_J \langle 0^I 1^I|\hat{g}|1^J 1^J\rangle \langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle \langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_I \sum_J \langle 0^I 1^I|\hat{g}|1^J 1^J\rangle \langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle \langle J_0|\hat{1}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1} t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^I0^I|\hat{g}|0^I1^I\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^I1^I|\hat{g}|1^I1^I\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^I0^I|\hat{g}|0^I1^I\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^I1^I|\hat{g}|1^I1^I\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A1^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A1^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A1^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A1^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|0^I 1^I\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I 1^I|\hat{g}|1^I 1^I\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|0^I 1^I\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^I 1^I|\hat{g}|1^I 1^I\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_2}$$

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$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|0^I 1^I\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 1^I|\hat{g}|1^I 1^I\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|0^I 1^I\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 1^I|\hat{g}|1^I 1^I\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^A | \hat{g} | 0^I 1^I \rangle \langle A_1 | \hat{0}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_1 | \hat{1}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_1 | \hat{1}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^A 1^I \rangle \langle A_1 | \hat{0}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_1 | \hat{1}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^A 1^I \rangle \langle A_1 | \hat{0}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_1 | \hat{1}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 0^B | \hat{g} | 0^I 1^I \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 0^B | \hat{g} | 0^I 1^I \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 0^B | \hat{g} | 0^I 1^I \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 0^B | \hat{g} | 0^I 1^I \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+ \frac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_1} t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_3)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|0^I 1^I\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 1^I|\hat{g}|1^I 1^I\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|0^I 1^I\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 1^I|\hat{g}|1^I 1^I\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \sum_J \langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \sum_J \langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+ \frac{-1}{2} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^J 0^J \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{-1}{2} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^J 0^J \rangle \langle I_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{-1}{2} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^J 1^J \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{-1}{2} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^J 1^J \rangle \langle I_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{-1}{2} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^J 1^J \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{-1}{2} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^J 1^J \rangle \langle I_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^A 1^I \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^A 1^I \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle I_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^A 1^I \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^A 1^I \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^A 1^I \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle I_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^A 1^I \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | A_1 \rangle \langle I_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle I_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | A_1 \rangle \langle I_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle I_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^A | \hat{g} | 0^I 1^I \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^A | \hat{g} | 0^I 1^I \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle I_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^A | \hat{g} | 0^I 1^I \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^A | \hat{g} | 0^I 1^I \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle I_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | A_1 \rangle \langle I_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle t_{A_1} t_{B_1, I_3}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^I0^I|\hat{g}|0^I1^I\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^I1^I|\hat{g}|1^I1^I\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^I0^I|\hat{g}|0^I1^I\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^I1^I|\hat{g}|1^I1^I\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|0^I1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|0^I 1^I\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 1^I|\hat{g}|1^I 1^I\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|0^I 1^I\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^I1^I|\hat{g}|1^I1^I\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I|\hat{h}|1^I\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|0^I 1^I\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 1^I|\hat{g}|1^I 1^I\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 0^I|\hat{g}|0^I 1^I\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^I 1^I|\hat{g}|1^I 1^I\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_1}t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_1} t_{B_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle t_{A_1} t_{B_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{A_1} t_{B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle t_{A_1} t_{B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle t_{A_1} t_{B_1} t_{I_3}$$

$$\langle (A_1, B_1) | \hat{H} | (B_1,) \rangle =$$

$$+ \tfrac{1}{2} \langle 0^A | \hat{h} | 0^A \rangle \langle A_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A | \hat{h} | 0^A \rangle \langle A_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \langle 1^A | \hat{h} | 1^A \rangle \langle A_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \langle 1^A | \hat{h} | 1^A \rangle \langle A_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | A_1 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 0^A | \hat{g} | 0^A 0^A \rangle \langle A_0 | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- | A_1 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 0^A | \hat{g} | 1^A 1^A \rangle \langle A_0 | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- | A_1 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 0^A | \hat{g} | 1^A 1^A \rangle \langle A_0 | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- | A_1 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \langle 1^A 1^A | \hat{g} | 1^A 1^A \rangle \langle A_0 | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- | A_1 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^A 0^I \rangle \langle A_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^A 0^I \rangle \langle A_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle I_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^A 0^I \rangle \langle A_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 1^I | \hat{g} | 0^A 1^I \rangle \langle A_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 1^I | \hat{g} | 0^A 1^I \rangle \langle A_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle I_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 1^I | \hat{g} | 0^A 1^I \rangle \langle A_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^A 0^I \rangle \langle A_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle I_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^A 0^I \rangle \langle A_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | A_1 \rangle \langle I_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^A 0^I \rangle \langle A_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle I_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{B_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^A 1^I | \hat{g} | 1^A 1^I \rangle \langle A_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle I_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^I0^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^I0^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|1^I1^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|1^I1^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|0^I0^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|0^I0^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|1^I1^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|1^I1^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^A0^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^A0^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^A1^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^A1^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A0^B\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A0^B\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A0^B\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A1^B|\hat{g}|0^A1^B\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A1^B|\hat{g}|0^A1^B\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A1^B|\hat{g}|0^A1^B\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{B_1}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A0^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{B_1}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A0^B\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_1}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A0^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_1}$$

$$+\tfrac{1}{2}\langle 1^A1^B|\hat{g}|1^A1^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{B_1}$$

$$+\tfrac{1}{2}\langle 1^A1^B|\hat{g}|1^A1^B\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{B_1}$$

$$+\tfrac{1}{2}\langle 1^A1^B|\hat{g}|1^A1^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{B_1}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B0^B\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{B_1}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B0^B\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_1}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|1^B1^B\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{B_1}$$

$+\frac{-1}{2}\langle 0^A 0^A|\hat{g}|1^B 1^B\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{B_1}$

$+\frac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{B_1}$

$+\frac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{B_1}$

$+\frac{-1}{2}\langle 1^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{B_1}$

$+\frac{-1}{2}\langle 1^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{B_1}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 0^B\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{B_1}$

$+\frac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{B_1}$

$+\frac{1}{2}\langle 0^A 1^B|\hat{g}|0^A 1^B\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{B_1}$

$+\frac{1}{2}\langle 1^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{B_1}$

$\langle(A_1,B_1)|\hat{H}|(A_2,B_1)\rangle =$

$+\frac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle t_{A_2,B_1}$

$+\frac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle t_{A_2,B_1}$

$+\frac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle t_{A_2,B_1}$

$+\frac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle t_{A_2,B_1}$

$+\frac{1}{2}\langle 0^A 0^A|\hat{g}|0^A 1^A\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|A_1\rangle t_{A_2,B_1}$

$+\frac{1}{2}\langle 0^A 1^A|\hat{g}|1^A 1^A\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|A_1\rangle t_{A_2,B_1}$

$+\frac{1}{2}\langle 0^A 0^A|\hat{g}|0^A 1^A\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|A_1\rangle t_{A_2,B_1}$

$+\frac{1}{2}\langle 0^A 1^A|\hat{g}|1^A 1^A\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|A_1\rangle t_{A_2,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2,B_1}$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2,B_1}$$

$$+\tfrac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^A|\hat{g}|0^A 1^A\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|A_1\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^A|\hat{g}|1^A 1^A\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|A_1\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^A|\hat{g}|0^A 1^A\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|A_1\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^A|\hat{g}|1^A 1^A\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|A_1\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2} t_{B_1}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^{A}1^{I}|\hat{g}|1^{A}1^{I}\rangle\langle A_{2}|\hat{1}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|A_{1}\rangle\langle I_{0}|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|I_{0}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}1^{A}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{0}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle I_{0}|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_{0}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}1^{A}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{0}^{+}_{\beta}\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{0}|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|I_{0}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}1^{A}|\hat{g}|1^{I}1^{I}\rangle\langle A_{2}|\hat{0}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle I_{0}|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_{0}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}1^{A}|\hat{g}|1^{I}1^{I}\rangle\langle A_{2}|\hat{0}^{+}_{\beta}\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{0}|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|I_{0}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}1^{A}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|A_{1}\rangle\langle I_{0}|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_{0}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}1^{A}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_{1}\rangle\langle I_{0}|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|I_{0}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}1^{A}|\hat{g}|1^{I}1^{I}\rangle\langle A_{2}|\hat{1}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|A_{1}\rangle\langle I_{0}|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_{0}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}1^{A}|\hat{g}|1^{I}1^{I}\rangle\langle A_{2}|\hat{1}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_{1}\rangle\langle I_{0}|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|I_{0}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{A}0^{I}\rangle\langle A_{2}|\hat{0}^{+}_{\beta}\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{0}|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_{0}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{A}0^{I}\rangle\langle A_{2}|\hat{1}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_{1}\rangle\langle I_{0}|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_{0}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^{A}1^{I}|\hat{g}|1^{A}1^{I}\rangle\langle A_{2}|\hat{0}^{+}_{\beta}\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{0}|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_{0}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^{A}1^{I}|\hat{g}|1^{A}1^{I}\rangle\langle A_{2}|\hat{1}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_{1}\rangle\langle I_{0}|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_{0}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\langle 0^{A}0^{B}|\hat{g}|1^{A}0^{B}\rangle\langle A_{2}|\hat{0}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle B_{1}|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\langle 0^{A}0^{B}|\hat{g}|1^{A}0^{B}\rangle\langle A_{2}|\hat{0}^{+}_{\beta}\hat{1}^{-}_{\beta}|A_{1}\rangle\langle B_{1}|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\langle 0^{A}0^{B}|\hat{g}|1^{A}0^{B}\rangle\langle A_{2}|\hat{0}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle B_{1}|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\langle 0^{A}1^{B}|\hat{g}|1^{A}1^{B}\rangle\langle A_{2}|\hat{0}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle B_{1}|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\langle 0^{A}1^{B}|\hat{g}|1^{A}1^{B}\rangle\langle A_{2}|\hat{0}^{+}_{\beta}\hat{1}^{-}_{\beta}|A_{1}\rangle\langle B_{1}|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\langle 0^{A}1^{B}|\hat{g}|1^{A}1^{B}\rangle\langle A_{2}|\hat{0}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle B_{1}|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\langle 0^{A}0^{B}|\hat{g}|1^{A}0^{B}\rangle\langle A_{2}|\hat{1}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|A_{1}\rangle\langle B_{1}|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\langle 0^{A}0^{B}|\hat{g}|1^{A}0^{B}\rangle\langle A_{2}|\hat{1}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_{1}\rangle\langle B_{1}|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\langle 0^{A}0^{B}|\hat{g}|1^{A}0^{B}\rangle\langle A_{2}|\hat{1}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|A_{1}\rangle\langle B_{1}|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\langle 0^{A}1^{B}|\hat{g}|1^{A}1^{B}\rangle\langle A_{2}|\hat{1}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|A_{1}\rangle\langle B_{1}|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\langle 0^{A}1^{B}|\hat{g}|1^{A}1^{B}\rangle\langle A_{2}|\hat{1}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_{1}\rangle\langle B_{1}|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{1}{2}\langle 0^{A}1^{B}|\hat{g}|1^{A}1^{B}\rangle\langle A_{2}|\hat{1}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|A_{1}\rangle\langle B_{1}|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{-1}{2}\langle 0^{A}1^{A}|\hat{g}|0^{B}0^{B}\rangle\langle A_{2}|\hat{0}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle B_{1}|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{-1}{2}\langle 0^{A}1^{A}|\hat{g}|0^{B}0^{B}\rangle\langle A_{2}|\hat{0}^{+}_{\beta}\hat{1}^{-}_{\beta}|A_{1}\rangle\langle B_{1}|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{-1}{2}\langle 0^{A}1^{A}|\hat{g}|1^{B}1^{B}\rangle\langle A_{2}|\hat{0}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle B_{1}|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$$+\tfrac{-1}{2}\langle 0^{A}1^{A}|\hat{g}|1^{B}1^{B}\rangle\langle A_{2}|\hat{0}^{+}_{\beta}\hat{1}^{-}_{\beta}|A_{1}\rangle\langle B_{1}|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|B_{1}\rangle t_{A_{2}}t_{B_{1}}$$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|0^B0^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_2}t_{B_1}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|0^B0^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2}t_{B_1}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|1^B1^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_2}t_{B_1}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|1^B1^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_2}t_{B_1}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A0^B\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_2}t_{B_1}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A0^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_2}t_{B_1}$

$+\frac{1}{2}\langle 0^A1^B|\hat{g}|1^A1^B\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_2}t_{B_1}$

$+\frac{1}{2}\langle 0^A1^B|\hat{g}|1^A1^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_2}t_{B_1}$

$\langle (A_1,B_1)|\hat{H}|(A_3,B_1)\rangle=$

$+\frac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle t_{A_3,B_1}$

$+\frac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle t_{A_3,B_1}$

$+\frac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle t_{A_3,B_1}$

$+\frac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle t_{A_3,B_1}$

$+\frac{1}{2}\langle 0^A0^A|\hat{g}|0^A1^A\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|A_1\rangle t_{A_3,B_1}$

$+\frac{1}{2}\langle 0^A1^A|\hat{g}|1^A1^A\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|A_1\rangle t_{A_3,B_1}$

$+\frac{1}{2}\langle 0^A0^A|\hat{g}|0^A1^A\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|A_1\rangle t_{A_3,B_1}$

$+\frac{1}{2}\langle 0^A1^A|\hat{g}|1^A1^A\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|A_1\rangle t_{A_3,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}$

$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3,B_1}$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_3,B_1}$$

$$+\tfrac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^A|\hat{g}|0^A 1^A\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|A_1\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^A|\hat{g}|1^A 1^A\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|A_1\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A 0^A|\hat{g}|0^A 1^A\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|A_1\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\langle 0^A 1^A|\hat{g}|1^A 1^A\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|A_1\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_3} t_{B_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 0^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 0^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_0 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 1^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 1^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_0 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 0^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 0^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_0 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 1^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 1^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_0 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 0^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 0^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 1^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 1^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 0^B | \hat{g} | 1^A 0^B \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 0^B | \hat{g} | 1^A 0^B \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 0^B | \hat{g} | 1^A 0^B \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 1^B | \hat{g} | 1^A 1^B \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 1^B | \hat{g} | 1^A 1^B \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 1^B | \hat{g} | 1^A 1^B \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 0^B | \hat{g} | 1^A 0^B \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 0^B | \hat{g} | 1^A 0^B \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 0^B | \hat{g} | 1^A 0^B \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 1^B | \hat{g} | 1^A 1^B \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 1^B | \hat{g} | 1^A 1^B \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{1}{2} \langle 0^A 1^B | \hat{g} | 1^A 1^B \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{-1}{2} \langle 0^A 1^A | \hat{g} | 0^B 0^B \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{-1}{2} \langle 0^A 1^A | \hat{g} | 0^B 0^B \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle B_1 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{-1}{2} \langle 0^A 1^A | \hat{g} | 1^B 1^B \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle B_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{-1}{2} \langle 0^A 1^A | \hat{g} | 1^B 1^B \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle B_1 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle t_{A_3} t_{B_1}$$

$$+ \tfrac{-1}{2} \langle 0^A 1^A | \hat{g} | 0^B 0^B \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle B_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle t_{A_3} t_{B_1}$$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|0^B0^B\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_3}t_{B_1}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|1^B1^B\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_3}t_{B_1}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|1^B1^B\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_3}t_{B_1}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A0^B\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_3}t_{B_1}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A0^B\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_3}t_{B_1}$

$+\frac{1}{2}\langle 0^A1^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_3}t_{B_1}$

$+\frac{1}{2}\langle 0^A1^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_3}t_{B_1}$

$\langle(A_1,B_1)|\hat{H}|(A_1,)\rangle =$

$+\frac{1}{2}\langle 0^B|\hat{h}|0^B\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}$

$+\frac{1}{2}\langle 0^B|\hat{h}|0^B\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1}$

$+\frac{1}{2}\langle 1^B|\hat{h}|1^B\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}$

$+\frac{1}{2}\langle 1^B|\hat{h}|1^B\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1}$

$+\frac{1}{2}\langle 0^B0^B|\hat{g}|0^B0^B\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|B_1\rangle t_{A_1}$

$+\frac{1}{2}\langle 0^B0^B|\hat{g}|1^B1^B\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|B_1\rangle t_{A_1}$

$+\frac{1}{2}\langle 0^B0^B|\hat{g}|1^B1^B\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|B_1\rangle t_{A_1}$

$+\frac{1}{2}\langle 1^B1^B|\hat{g}|1^B1^B\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|B_1\rangle t_{A_1}$

$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|0^B0^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}$

$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|0^B0^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}$

$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|0^B0^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}$

$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}$

$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}$

$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}$

$+\frac{1}{2}\sum_I\langle 1^B0^I|\hat{g}|1^B0^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}$

$+\frac{1}{2}\sum_I\langle 1^B0^I|\hat{g}|1^B0^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}$

$+\frac{1}{2}\sum_I\langle 1^B0^I|\hat{g}|1^B0^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}$

$+\frac{1}{2}\sum_I\langle 1^B1^I|\hat{g}|1^B1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}$

$+\frac{1}{2}\sum_I\langle 1^B1^I|\hat{g}|1^B1^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}$

$$+\tfrac{1}{2}\sum_I\langle 1^B1^I|\hat{g}|1^B1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B0^B|\hat{g}|0^I0^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B0^B|\hat{g}|0^I0^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B0^B|\hat{g}|1^I1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B0^B|\hat{g}|1^I1^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^B1^B|\hat{g}|0^I0^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^B1^B|\hat{g}|0^I0^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^B1^B|\hat{g}|1^I1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^B1^B|\hat{g}|1^I1^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|0^B0^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^B0^I|\hat{g}|1^B0^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^B1^I|\hat{g}|1^B1^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A0^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A0^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A0^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1}$$

$$+\tfrac{1}{2}\langle 0^A1^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}$$

$$+\tfrac{1}{2}\langle 0^A1^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1}$$

$$+\tfrac{1}{2}\langle 0^A1^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A0^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A0^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A0^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1}$$

$$+\tfrac{1}{2}\langle 1^A1^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}$$

$$+\tfrac{1}{2}\langle 1^A1^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1}$$

$$+\tfrac{1}{2}\langle 1^A1^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B0^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B0^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|1^B1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|1^B1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1}$$

$+\frac{-1}{2}\langle 1^A1^A|\hat{g}|0^B0^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}$

$+\frac{-1}{2}\langle 1^A1^A|\hat{g}|0^B0^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1}$

$+\frac{-1}{2}\langle 1^A1^A|\hat{g}|1^B1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}$

$+\frac{-1}{2}\langle 1^A1^A|\hat{g}|1^B1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|0^A0^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}$

$+\frac{1}{2}\langle 1^A0^B|\hat{g}|1^A0^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}$

$+\frac{1}{2}\langle 0^A1^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}$

$+\frac{1}{2}\langle 1^A1^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_2)\rangle =$

$+\frac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1,B_2}$

$+\frac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1,B_2}$

$+\frac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1,B_2}$

$+\frac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1,B_2}$

$+\frac{1}{2}\langle 0^B0^B|\hat{g}|0^B1^B\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|B_1\rangle t_{A_1,B_2}$

$+\frac{1}{2}\langle 0^B1^B|\hat{g}|1^B1^B\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|B_1\rangle t_{A_1,B_2}$

$+\frac{1}{2}\langle 0^B0^B|\hat{g}|0^B1^B\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|B_1\rangle t_{A_1,B_2}$

$+\frac{1}{2}\langle 0^B1^B|\hat{g}|1^B1^B\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|B_1\rangle t_{A_1,B_2}$

$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_2}$

$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_2}$

$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_2}$

$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_2}$

$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_2}$

$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_2}$

$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_2}$

$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_2}$

$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_2}$

$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_2}$

$$+\tfrac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\langle 0^A 0^A|\hat{g}|0^B 1^B\rangle\langle A_1|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_1|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_1|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_1,B_2}$$

$$+\tfrac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^B 0^B|\hat{g}|0^B 1^B\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|B_1\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^B 1^B|\hat{g}|1^B 1^B\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|B_1\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^B 0^B|\hat{g}|0^B 1^B\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|B_1\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^B 1^B|\hat{g}|1^B 1^B\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|B_1\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 0^I \rangle \langle B_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 0^I \rangle \langle B_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 1^I \rangle \langle B_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 1^I \rangle \langle B_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 0^I \rangle \langle B_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 0^I \rangle \langle B_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 1^I \rangle \langle B_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 1^I \rangle \langle B_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \langle 0^A 0^B | \hat{g} | 0^A 1^B \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle B_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \langle 0^A 0^B | \hat{g} | 0^A 1^B \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle B_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \langle 0^A 0^B | \hat{g} | 0^A 1^B \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle B_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \langle 0^A 0^B | \hat{g} | 0^A 1^B \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle B_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \langle 0^A 0^B | \hat{g} | 0^A 1^B \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle B_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \langle 0^A 0^B | \hat{g} | 0^A 1^B \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle B_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \langle 1^A 0^B | \hat{g} | 1^A 1^B \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle B_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \langle 1^A 0^B | \hat{g} | 1^A 1^B \rangle \langle A_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | A_1 \rangle \langle B_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \langle 1^A 0^B | \hat{g} | 1^A 1^B \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle B_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \langle 1^A 0^B | \hat{g} | 1^A 1^B \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle B_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \langle 1^A 0^B | \hat{g} | 1^A 1^B \rangle \langle A_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | A_1 \rangle \langle B_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{1}{2} \langle 1^A 0^B | \hat{g} | 1^A 1^B \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle B_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{-1}{2} \langle 0^A 0^A | \hat{g} | 0^B 1^B \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle B_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{-1}{2} \langle 0^A 0^A | \hat{g} | 0^B 1^B \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle B_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{-1}{2} \langle 0^A 0^A | \hat{g} | 0^B 1^B \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle B_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{-1}{2} \langle 0^A 0^A | \hat{g} | 0^B 1^B \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle B_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+ \tfrac{-1}{2} \langle 1^A 1^A | \hat{g} | 0^B 1^B \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle B_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle t_{A_1} t_{B_2}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1}t_{B_2}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}t_{B_2}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1}t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}t_{B_2}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}t_{B_2}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}t_{B_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_3)\rangle =$$

$$+\tfrac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^B 0^B|\hat{g}|0^B 1^B\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^B 1^B|\hat{g}|1^B 1^B\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^B 0^B|\hat{g}|0^B 1^B\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^B 1^B|\hat{g}|1^B 1^B\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_1,B_3}$$

$$+\tfrac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^B 0^B|\hat{g}|0^B 1^B\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^B 1^B|\hat{g}|1^B 1^B\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^B 0^B|\hat{g}|0^B 1^B\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^B 1^B|\hat{g}|1^B 1^B\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\langle 1^A1^A|\hat{g}|0^B1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\langle 1^A1^A|\hat{g}|0^B1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}t_{B_3}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_1}t_{B_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^I|\hat{h}|0^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{8}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^I 0^J\rangle\langle I_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{8}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^I\rangle\langle I_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^I\rangle\langle I_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^I\rangle\langle I_{12}|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^I 0^J\rangle\langle I_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^I 0^J\rangle\langle I_{12}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^J 0^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^J 1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_0|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_0|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^A 0^J\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^A|\hat{g}|0^I 0^J\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 1^A|\hat{g}|0^I 0^J\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^A 0^J\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|0^I0^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|0^I0^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I|\hat{h}|0^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I0^J\rangle\langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^I\rangle\langle I_{12}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^I\rangle\langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^I\rangle\langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I0^J\rangle\langle I_{12}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I0^J\rangle\langle I_{12}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^J0^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^J1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I0^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|0^I0^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|0^I0^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_7)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I|\hat{h}|0^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I0^J\rangle\langle I_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^I\rangle\langle I_{14}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^I\rangle\langle I_{14}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I0^J\rangle\langle I_{14}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^I\rangle\langle I_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I0^J\rangle\langle I_{14}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^J0^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^J1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I0^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|0^I0^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|0^I0^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I|\hat{h}|0^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I0^J\rangle\langle I_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^I\rangle\langle I_{14}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^I\rangle\langle I_{14}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I0^J\rangle\langle I_{14}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^I\rangle\langle I_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I0^J\rangle\langle I_{14}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^J0^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^J1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I0^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|0^I0^J\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|0^I0^J\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I|\hat{h}|1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I1^J\rangle\langle I_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^I\rangle\langle I_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^I\rangle\langle I_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^I\rangle\langle I_{12}|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I1^J\rangle\langle I_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I1^J\rangle\langle I_{12}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^J1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^J1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I1^J\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|0^I1^J\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|0^I1^J\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I|\hat{h}|1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I1^J\rangle\langle I_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^I\rangle\langle I_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^I\rangle\langle I_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^I\rangle\langle I_{12}|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I1^J\rangle\langle I_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I1^J\rangle\langle I_{12}|\hat{1}_\beta^+\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^J1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^J1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I1^J\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|0^I1^J\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|0^I1^J\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_8)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I|\hat{h}|1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I1^J\rangle\langle I_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^I\rangle\langle I_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^I\rangle\langle I_{14}|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I1^J\rangle\langle I_{14}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^I\rangle\langle I_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I1^J\rangle\langle I_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^J1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\alpha^+\hat{0}_\beta^-\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^J1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\alpha^+\hat{1}_\beta^-\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_0|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_0|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_0|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_0|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I1^J\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|0^I1^J\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|0^I1^J\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I|\hat{h}|1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I1^J\rangle\langle I_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^I\rangle\langle I_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^I\rangle\langle I_{14}|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I1^J\rangle\langle I_{14}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^I\rangle\langle I_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I1^J\rangle\langle I_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^J1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\alpha^+\hat{0}_\beta^-\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^J1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\alpha^+\hat{1}_\beta^-\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_0|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_0|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_0|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_0|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I1^J\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^B|\hat g|0^I1^J\rangle\langle B_1|\hat 0_\beta^+\hat 0_\beta^-|B_1\rangle\langle I_{14}|\hat 0_\beta^+|I_0\rangle\langle J_8|\hat 1_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^B|\hat g|0^I1^J\rangle\langle B_1|\hat 1_\beta^+\hat 1_\beta^-|B_1\rangle\langle I_{14}|\hat 0_\beta^+|I_0\rangle\langle J_8|\hat 1_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}$$

$$\langle (A_1,B_1)|\hat H|(A_1,B_1,I_{11},J_9)\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^I|\hat h|0^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat g|0^I0^J\rangle\langle I_{11}|\hat 0_\alpha^+\hat 1_\alpha^+\hat 0_\alpha^-|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{8}\sum_I\sum_J\langle 0^I0^I|\hat g|1^I0^J\rangle\langle I_{11}|\hat 1_\alpha^+\hat 0_\alpha^+\hat 0_\alpha^-|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^I0^I|\hat g|1^I0^J\rangle\langle I_{11}|\hat 0_\alpha^+\hat 0_\beta^+\hat 1_\beta^-|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 0^I0^I|\hat g|1^I0^J\rangle\langle I_{11}|\hat 0_\alpha^+\hat 1_\alpha^+\hat 0_\alpha^-|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat g|0^I0^J\rangle\langle I_{11}|\hat 1_\alpha^+\hat 0_\alpha^+\hat 0_\alpha^-|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^I1^I|\hat g|0^I0^J\rangle\langle I_{11}|\hat 1_\alpha^+\hat 0_\beta^+\hat 0_\beta^-|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat g|0^J0^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\beta^+\hat 0_\beta^-\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat g|1^J1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\beta^+\hat 1_\beta^-\hat 1_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J0^K\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle\langle K_0|\hat 0_\alpha^+\hat 0_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat g|0^J1^K\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle\langle K_0|\hat 1_\alpha^+\hat 1_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K0^K\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle\langle K_0|\hat 0_\alpha^+\hat 0_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|1^K1^K\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle\langle K_0|\hat 1_\alpha^+\hat 1_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J0^K\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle\langle K_0|\hat 0_\beta^+\hat 0_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat g|0^J1^K\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle\langle K_0|\hat 1_\beta^+\hat 1_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat g|0^A0^J\rangle\langle A_1|\hat 0_\alpha^+\hat 0_\alpha^-|A_1\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat g|1^A0^J\rangle\langle A_1|\hat 1_\alpha^+\hat 1_\alpha^-|A_1\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^A|\hat g|1^I0^J\rangle\langle A_1|\hat 0_\alpha^+\hat 0_\alpha^-|A_1\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^A|\hat g|1^I0^J\rangle\langle A_1|\hat 1_\alpha^+\hat 1_\alpha^-|A_1\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat g|0^A0^J\rangle\langle A_1|\hat 0_\beta^+\hat 0_\beta^-|A_1\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat g|1^A0^J\rangle\langle A_1|\hat 1_\beta^+\hat 1_\beta^-|A_1\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat g|0^B0^J\rangle\langle B_1|\hat 0_\alpha^+\hat 0_\alpha^-|B_1\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat g|1^B0^J\rangle\langle B_1|\hat 1_\alpha^+\hat 1_\alpha^-|B_1\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^B|\hat g|1^I0^J\rangle\langle B_1|\hat 0_\alpha^+\hat 0_\alpha^-|B_1\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_9|\hat 0_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B 1^B|\hat{g}|1^I 0^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^B 0^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I|\hat{h}|0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^I 0^J\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|1^I 0^J\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|1^I 0^J\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|1^I 0^J\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^I 0^J\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^I 0^J\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|0^J 0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^J 1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^A 0^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^A|\hat{g}|1^I 0^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^A|\hat{g}|1^I 0^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^A 0^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^B 0^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B 0^B|\hat{g}|1^I 0^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B 1^B|\hat{g}|1^I 0^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^B 0^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_7)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I|\hat{h}|0^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^I0^J\rangle\langle I_{13}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^I0^J\rangle\langle I_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^I0^J\rangle\langle I_{13}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^I0^J\rangle\langle I_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^I0^J\rangle\langle I_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^I0^J\rangle\langle I_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|0^J0^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^J1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|1^I0^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|1^I0^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_7}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 0^B | \hat{g} | 1^I 0^J \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1, B_1} t_{I_{13}, J_7}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 1^B | \hat{g} | 1^I 0^J \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1, B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^I | \hat{h} | 0^J \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 0^I | \hat{g} | 1^I 0^J \rangle \langle I_{13} | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{-1}{8} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^I 0^J \rangle \langle I_{13} | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^I 0^J \rangle \langle I_{13} | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{-1}{8} \sum_I \sum_J \langle 0^I 0^I | \hat{g} | 1^I 0^J \rangle \langle I_{13} | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{8} \sum_I \sum_J \langle 0^I 0^I | \hat{g} | 1^I 0^J \rangle \langle I_{13} | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{8} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^I 0^J \rangle \langle I_{13} | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 0^J 0^J \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 1^J 1^J \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \sum_K \langle 1^I 0^K | \hat{g} | 0^J 0^K \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \sum_K \langle 1^I 0^K | \hat{g} | 0^J 0^K \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \sum_K \langle 1^I 1^K | \hat{g} | 0^J 1^K \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \sum_K \langle 1^I 1^K | \hat{g} | 0^J 1^K \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{-1}{4} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 0^K 0^K \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{-1}{4} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 1^K \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^A 1^I | \hat{g} | 0^A 0^J \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^A 1^I | \hat{g} | 0^A 0^J \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^A 1^I | \hat{g} | 1^A 0^J \rangle \langle A_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^A 1^I | \hat{g} | 1^A 0^J \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^A 0^A | \hat{g} | 1^I 0^J \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 1^A | \hat{g} | 1^I 0^J \rangle \langle A_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^B 0^J \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^B 0^J \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^B 1^I | \hat{g} | 1^B 0^J \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^B 1^I | \hat{g} | 1^B 0^J \rangle \langle B_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 0^B | \hat{g} | 1^I 0^J \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 1^B | \hat{g} | 1^I 0^J \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{11}, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^I|\hat{h}|1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^I1^J\rangle\langle I_{11}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{8}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^I1^J\rangle\langle I_{11}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^I1^J\rangle\langle I_{11}|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^I1^J\rangle\langle I_{11}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^I1^J\rangle\langle I_{11}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^I1^J\rangle\langle I_{11}|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|0^J1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^J1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_0|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|1^I1^J\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|1^I1^J\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|1^I1^J\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|1^I1^J\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I|\hat{h}|1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^I1^J\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^I1^J\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^I1^J\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^I1^J\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^I1^J\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^I1^J\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|0^J1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^J1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|1^I1^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|1^I1^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|1^I1^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|1^I1^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{13}, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^I|\hat{h}|1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^I0^I|\hat{g}|1^I1^J\rangle\langle I_{13}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{8}\sum_I\sum_J \langle 0^I1^I|\hat{g}|0^I1^J\rangle\langle I_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^I1^I|\hat{g}|0^I1^J\rangle\langle I_{13}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{8}\sum_I\sum_J \langle 0^I0^I|\hat{g}|1^I1^J\rangle\langle I_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{8}\sum_I\sum_J \langle 0^I0^I|\hat{g}|1^I1^J\rangle\langle I_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{8}\sum_I\sum_J \langle 0^I1^I|\hat{g}|0^I1^J\rangle\langle I_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^I0^J|\hat{g}|0^J1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^I1^J|\hat{g}|1^J1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K \langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K \langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\sum_K \langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\sum_K \langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A0^A|\hat{g}|1^I1^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A1^A|\hat{g}|1^I1^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B0^B|\hat{g}|1^I1^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^B1^B|\hat{g}|1^I1^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I|\hat{h}|1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|1^I1^I\rangle\langle I_{13}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^I1^I\rangle\langle I_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^I1^I\rangle\langle I_{13}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|1^I1^I\rangle\langle I_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|1^I1^I\rangle\langle I_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^I1^I\rangle\langle I_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|0^J1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^I1^J|\hat{g}|1^J1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^A|\hat{g}|1^I1^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^A|\hat{g}|1^I1^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^B|\hat{g}|1^I1^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^B|\hat{g}|1^I1^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_9, J_{12}) \rangle =$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I | \hat{h} | 0^J \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 0^I | \hat{g} | 0^I 0^J \rangle \langle I_9 | \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^I 0^J \rangle \langle I_9 | \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{8} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 0^J 1^J \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 0^J 1^J \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{8} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^J 1^J \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^J 1^J \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{1}{8} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^J 1^J \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{1}{8} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 0^J 1^J \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 0^K \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | K_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \sum_K \langle 0^I 1^K | \hat{g} | 0^J 1^K \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | K_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{1}{4} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 0^K 0^K \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | K_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{1}{4} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^K 1^K \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | K_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 0^K \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | K_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \sum_K \langle 0^I 1^K | \hat{g} | 0^J 1^K \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | K_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^A 0^I | \hat{g} | 0^A 0^J \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 0^I | \hat{g} | 1^A 0^J \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^A 0^A | \hat{g} | 0^I 0^J \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^A 1^A | \hat{g} | 0^I 0^J \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^A 0^I | \hat{g} | 0^A 0^J \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 0^I | \hat{g} | 1^A 0^J \rangle \langle A_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^B 0^J \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 1^B 0^J \rangle \langle B_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^B 0^B | \hat{g} | 0^I 0^J \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^B 1^B | \hat{g} | 0^I 0^J \rangle \langle B_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^B 0^J \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 1^B 0^J \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1, B_1} t_{I_9, J_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I | \hat{h} | 0^J \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^I 0^I | \hat{g} | 0^I 0^J \rangle \langle I_9 | \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^I 0^J \rangle \langle I_9 | \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{8} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 0^J 1^J \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 0^J 1^J \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{8} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^J 1^J \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^J 1^J \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{1}{8} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^J 1^J \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{1}{8} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 0^J 1^J \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 0^K \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \sum_K \langle 0^I 1^K | \hat{g} | 0^J 1^K \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 0^K 0^K \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^K 1^K \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 0^K \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \sum_K \langle 0^I 1^K | \hat{g} | 0^J 1^K \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^A 0^I | \hat{g} | 0^A 0^J \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 1^A 0^I | \hat{g} | 1^A 0^J \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^A 0^A | \hat{g} | 0^I 0^J \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 1^A 1^A | \hat{g} | 0^I 0^J \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^A 0^I | \hat{g} | 0^A 0^J \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 1^A 0^I | \hat{g} | 1^A 0^J \rangle \langle A_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^B 0^J \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 1^B 0^J \rangle \langle B_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 0^B | \hat{g} | 0^I 0^J \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 1^B 1^B | \hat{g} | 0^I 0^J \rangle \langle B_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^B 0^J \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 1^B 0^J \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_1} t_{I_9, J_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_7, J_{14}) \rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I|\hat{h}|0^J\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^I0^J\rangle\langle I_7|\hat{0}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^I0^J\rangle\langle I_7|\hat{0}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|0^J1^J\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^J1^J\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^J1^J\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|0^J1^J\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I1^J|\hat{g}|0^J1^J\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^J1^J\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|1^K1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^A|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^A|\hat{g}|0^I0^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^B|\hat{g}|0^I0^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^B|\hat{g}|0^I0^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I|\hat{h}|0^J\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^I0^J\rangle\langle I_7|\hat{0}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^I0^J\rangle\langle I_7|\hat{0}^+_\alpha\hat{1}^-_{\bar\beta}\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^J1^J\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^J1^J\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{1}^+_{\bar\beta}\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^J1^J\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^J1^J\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{1}^+_{\bar\beta}\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^J1^J\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{1}^+_\alpha\hat{0}^+_{\bar\beta}\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^J1^J\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{1}^+_\alpha\hat{1}^+_{\bar\beta}\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle\langle K_0|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|K_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle\langle K_0|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|K_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^K\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle\langle K_0|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|K_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^K\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle\langle K_0|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|K_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I0^J\rangle\langle A_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|B_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|B_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|0^I0^J\rangle\langle B_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|B_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|0^I0^J\rangle\langle B_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|B_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I|\hat{h}|0^J\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^I0^J\rangle\langle I_{10}|\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^I0^J\rangle\langle I_{10}|\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 1^I1^J|\hat{g}|0^J1^J\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|0^J1^J\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^J1^J\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^J1^J\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^J1^J\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 1^I1^J|\hat{g}|0^J1^J\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|1^I0^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|1^I0^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|1^I0^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|1^I0^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I|\hat{h}|0^J\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^I0^J\rangle\langle I_{10}|\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^I0^J\rangle\langle I_{10}|\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{8}\sum_{I}\sum_{J}\langle 1^I1^J|\hat{g}|0^J1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^I1^J|\hat{g}|0^J1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{8}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^J1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^J1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{8}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^J1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{8}\sum_{I}\sum_{J}\langle 1^I1^J|\hat{g}|0^J1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|1^K1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_0|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_0|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^A|\hat{g}|1^I0^J\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^A|\hat{g}|1^I0^J\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^A0^J\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^A0^J\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^B|\hat{g}|1^I0^J\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^B|\hat{g}|1^I0^J\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^B0^J\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^B0^J\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{14})\rangle =$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^I|\hat{h}|0^J\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|1^I0^J\rangle\langle I_8|\hat{1}_\alpha^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|1^I 0^J\rangle\langle I_8|\hat{1}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|0^J 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^J 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^J 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|0^J 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|0^J 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^J 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^A 0^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^A 0^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^A|\hat{g}|1^I 0^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^A|\hat{g}|1^I 0^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^B 0^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^B 0^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B 0^B|\hat{g}|1^I 0^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 1^B|\hat{g}|1^I 0^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I|\hat{h}|0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|1^I 0^J\rangle\langle I_8|\hat{1}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|1^I 0^J\rangle\langle I_8|\hat{1}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|0^J 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^J 1^J\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{1}_{\beta}^+\hat{0}_{\beta}^+\hat{1}_{\beta}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^J 1^J\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+\hat{1}_{\beta}^+\hat{1}_{\beta}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|0^J 1^J\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{1}_{\beta}^+\hat{0}_{\beta}^+\hat{1}_{\beta}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|0^J 1^J\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{1}_{\alpha}^+\hat{0}_{\beta}^+\hat{1}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^J 1^J\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{1}_{\alpha}^+\hat{1}_{\beta}^+\hat{0}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_0|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_0|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_0|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_0|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_0|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_0|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^A 0^J\rangle\langle A_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^A 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^A|\hat{g}|1^I 0^J\rangle\langle A_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^A|\hat{g}|1^I 0^J\rangle\langle A_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^B 0^J\rangle\langle B_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^B 0^J\rangle\langle B_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B 0^B|\hat{g}|1^I 0^J\rangle\langle B_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 1^B|\hat{g}|1^I 0^J\rangle\langle B_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{11})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I|\hat{h}|1^J\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^I 1^J\rangle\langle I_9|\hat{0}_{\beta}^+\hat{0}_{\beta}^-\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^I 1^J\rangle\langle I_9|\hat{0}_{\beta}^+\hat{1}_{\beta}^-\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|0^J 1^J\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{0}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{8}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|0^J 1^J\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{0}^+_\alpha \hat{1}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{8}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^J 0^J\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha \hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^J 0^J\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{1}{8}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|1^J 0^J\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{0}^+_\alpha \hat{1}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{1}{8}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|0^J 1^J\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha \hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \sum_K \langle 0^I 0^K|\hat{g}|1^J 0^K\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle \langle K_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \sum_K \langle 0^I 1^K|\hat{g}|1^J 1^K\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle \langle K_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{1}{4}\sum_I \sum_J \sum_K \langle 0^I 1^J|\hat{g}|0^K 0^K\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle \langle K_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{1}{4}\sum_I \sum_J \sum_K \langle 0^I 1^J|\hat{g}|1^K 1^K\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle \langle K_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \sum_K \langle 0^I 0^K|\hat{g}|1^J 0^K\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle \langle K_0|\hat{0}^+_\beta \hat{0}^-_\beta|K_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \sum_K \langle 0^I 1^K|\hat{g}|1^J 1^K\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle \langle K_0|\hat{1}^+_\beta \hat{1}^-_\beta|K_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|0^A 1^J\rangle \langle A_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^A 1^J\rangle \langle A_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{1}{4}\sum_I \sum_J \langle 0^A 0^A|\hat{g}|0^I 1^J\rangle \langle A_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{1}{4}\sum_I \sum_J \langle 1^A 1^A|\hat{g}|0^I 1^J\rangle \langle A_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|0^A 1^J\rangle \langle A_1|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^A 1^J\rangle \langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \langle 0^B 0^I|\hat{g}|0^B 1^J\rangle \langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|1^B 1^J\rangle \langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{1}{4}\sum_I \sum_J \langle 0^B 0^B|\hat{g}|0^I 1^J\rangle \langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{1}{4}\sum_I \sum_J \langle 1^B 1^B|\hat{g}|0^I 1^J\rangle \langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \langle 0^B 0^I|\hat{g}|0^B 1^J\rangle \langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|1^B 1^J\rangle \langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \langle 0^I|\hat{h}|1^J\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1} t_{B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \langle 0^I 0^I|\hat{g}|0^I 1^J\rangle \langle I_9|\hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1} t_{B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \langle 0^I 1^I|\hat{g}|1^I 1^J\rangle \langle I_9|\hat{0}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1} t_{B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{4}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|0^J 1^J\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{0}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1} t_{B_1} t_{I_9,J_{11}}$$

$$+ \frac{-1}{8}\sum_I \sum_J \langle 0^I 0^J|\hat{g}|0^J 1^J\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{0}^+_\alpha \hat{1}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1} t_{B_1} t_{I_9,J_{11}}$$

$$+\tfrac{-1}{8}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^J0^J\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^J0^J\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{1}{8}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^J0^J\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{1}{8}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^J1^J\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_0|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_0|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_0|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_0|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_0|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_0|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|A_1\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|A_1\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^A|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|A_1\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^A|\hat{g}|0^I1^J\rangle\langle A_1|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|A_1\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_1\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|A_1\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_1\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_1\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^B|\hat{g}|0^I1^J\rangle\langle B_1|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_1\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^B|\hat{g}|0^I1^J\rangle\langle B_1|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_1\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_1\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|B_1\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{13})\rangle =$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I|\hat{h}|1^J\rangle\langle I_7|\hat{0}_{\beta}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^I1^J\rangle\langle I_7|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^I1^J\rangle\langle I_7|\hat{0}_{\alpha}^{+}\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{8}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^J1^J\rangle\langle I_7|\hat{0}_{\beta}^{-}|I_0\rangle\langle J_{13}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^J 0^J\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+\hat{0}_{\beta}^+\hat{0}_{\beta}^-|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^J 1^J\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{0}_{\alpha}^+\hat{0}_{\beta}^+\hat{1}_{\alpha}^-|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^J 0^J\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{0}_{\beta}^+\hat{1}_{\beta}^+\hat{0}_{\beta}^-|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^J 0^J\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{0}_{\alpha}^+\hat{1}_{\beta}^+\hat{0}_{\alpha}^-|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^J 1^J\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+\hat{0}_{\beta}^+\hat{0}_{\beta}^-|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_0|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_0|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_0|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_0|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|0^K 0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_0|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^K 1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_0|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^A 1^J\rangle\langle A_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|A_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^A 1^J\rangle\langle A_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|A_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|A_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|A_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^A|\hat{g}|0^I 1^J\rangle\langle A_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|A_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 1^A|\hat{g}|0^I 1^J\rangle\langle A_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|A_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^B 1^J\rangle\langle B_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^B 1^J\rangle\langle B_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|B_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|B_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^B|\hat{g}|0^I 1^J\rangle\langle B_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^B|\hat{g}|0^I 1^J\rangle\langle B_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I|\hat{h}|1^J\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^I|\hat{g}|0^I 1^J\rangle\langle I_7|\hat{0}_{\alpha}^+\hat{0}_{\beta}^-\hat{0}_{\alpha}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^I 1^J\rangle\langle I_7|\hat{0}_{\alpha}^+\hat{1}_{\beta}^-\hat{1}_{\alpha}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^J 1^J\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{0}_{\beta}^+\hat{1}_{\beta}^+\hat{0}_{\beta}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^J 0^J\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+\hat{0}_{\beta}^+\hat{0}_{\beta}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^J 1^J\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{0}_{\alpha}^+\hat{0}_{\beta}^+\hat{1}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^J0^J\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^J0^J\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{0}_{\alpha}^+\hat{1}_{\bar\beta}^+\hat{0}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{8}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^J1^J\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_0|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_0|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_0|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_0|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_0|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_0|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|A_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|A_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|A_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|A_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|A_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I1^J\rangle\langle A_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|A_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|0^I1^J\rangle\langle B_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|0^I1^J\rangle\langle B_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^I|\hat{h}|1^J\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^I1^J\rangle\langle I_{10}|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^I1^J\rangle\langle I_{10}|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|0^J1^J\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{0}_{\alpha}^+\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{8}\sum_I\sum_J\langle 1^I0^J|\hat{g}|0^J1^J\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^J0^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^J0^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^J0^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{8}\sum_I\sum_J\langle 1^I0^J|\hat{g}|0^J1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_0|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_0|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|1^I1^J\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|1^I1^J\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|1^I1^J\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|1^I1^J\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I|\hat{h}|1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^I1^J\rangle\langle I_{10}|\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^I1^J\rangle\langle I_{10}|\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|0^J1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 1^I0^J|\hat{g}|0^J1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{8}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^J0^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^J0^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{8}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^J0^J\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{8}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|0^J1^J\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^A|\hat{g}|1^I1^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^A|\hat{g}|1^I1^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^B|\hat{g}|1^I1^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^B|\hat{g}|1^I1^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{13})\rangle =$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^I|\hat{h}|1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|1^I1^J\rangle\langle I_8|\hat{1}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|1^I1^J\rangle\langle I_8|\hat{1}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{8}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|0^J1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{8}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^J0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|0^J1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{8}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^J 0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^J 0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{8}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|0^J 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 1^J|\hat{g}|0^K 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_0|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 1^J|\hat{g}|1^K 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_0|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^A 1^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^A 1^J\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|1^A 1^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|1^A 1^J\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^A|\hat{g}|1^I 1^J\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^A 1^A|\hat{g}|1^I 1^J\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^B 1^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^B 1^J\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^B 1^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^B 1^J\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^B|\hat{g}|1^I 1^J\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^B|\hat{g}|1^I 1^J\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^I|\hat{h}|1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^I|\hat{g}|1^I 1^J\rangle\langle I_8|\hat{1}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I 1^I|\hat{g}|1^I 1^J\rangle\langle I_8|\hat{1}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{8}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|0^J 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{8}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^J 0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|0^J 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{8}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^J 0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^J 0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{8}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|0^J1^J\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+\hat{0}_{\beta}^+\hat{0}_{\beta}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_0|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_0|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_0|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_0|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_0|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_0|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^A|\hat{g}|1^I1^J\rangle\langle A_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^A|\hat{g}|1^I1^J\rangle\langle A_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^B|\hat{g}|1^I1^J\rangle\langle B_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^B|\hat{g}|1^I1^J\rangle\langle B_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{15},J_6)\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_{15}|\hat{0}_{\alpha}^+\hat{0}_{\beta}^+|I_0\rangle\langle J_6|\hat{0}_{\beta}^-\hat{0}_{\alpha}^-|J_0\rangle t_{A_1,B_1}t_{I_{15},J_6}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_{15}|\hat{0}_{\alpha}^+\hat{0}_{\beta}^+|I_0\rangle\langle J_6|\hat{1}_{\beta}^-\hat{1}_{\alpha}^-|J_0\rangle t_{A_1,B_1}t_{I_{15},J_6}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_{15}|\hat{1}_{\alpha}^+\hat{1}_{\beta}^+|I_0\rangle\langle J_6|\hat{0}_{\beta}^-\hat{0}_{\alpha}^-|J_0\rangle t_{A_1,B_1}t_{I_{15},J_6}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_{15}|\hat{1}_{\alpha}^+\hat{1}_{\beta}^+|I_0\rangle\langle J_6|\hat{1}_{\beta}^-\hat{1}_{\alpha}^-|J_0\rangle t_{A_1,B_1}t_{I_{15},J_6}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_{15}|\hat{0}_{\alpha}^+\hat{0}_{\beta}^+|I_0\rangle\langle J_6|\hat{0}_{\beta}^-\hat{0}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{15},J_6}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_{15}|\hat{0}_{\alpha}^+\hat{0}_{\beta}^+|I_0\rangle\langle J_6|\hat{1}_{\beta}^-\hat{1}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{15},J_6}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_{15}|\hat{1}_{\alpha}^+\hat{1}_{\beta}^+|I_0\rangle\langle J_6|\hat{0}_{\beta}^-\hat{0}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{15},J_6}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_{15}|\hat{1}_\alpha^+\hat{1}_\beta^+|I_0\rangle\langle J_6|\hat{1}_\beta^-\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{15},J_6}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_1,J_1)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|1^J 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|1^J 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|1^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I0^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I0^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I1^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_1,J_2)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_1,J_3)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 0^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I1^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|0^I1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I0^J|\hat{g}|1^I1^J\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I0^I|\hat{g}|0^J1^J\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_1}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 0^I | \hat{g} | 0^J 1^J \rangle \langle I_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{B_1} t_{A_1, J_3} t_{I_1}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 0^I | \hat{g} | 0^J 1^J \rangle \langle I_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{B_1} t_{A_1, J_3} t_{I_1}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^I 1^I | \hat{g} | 0^J 1^J \rangle \langle I_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{B_1} t_{A_1, J_3} t_{I_1}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^I 1^I | \hat{g} | 0^J 1^J \rangle \langle I_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{B_1} t_{A_1, J_3} t_{I_1}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^I 1^I | \hat{g} | 0^J 1^J \rangle \langle I_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{B_1} t_{A_1, J_3} t_{I_1}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^I 1^I | \hat{g} | 0^J 1^J \rangle \langle I_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{B_1} t_{A_1, J_3} t_{I_1}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 0^I 1^J \rangle \langle I_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{B_1} t_{A_1, J_3} t_{I_1}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{B_1} t_{A_1, J_3} t_{I_1}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 0^I 1^J \rangle \langle I_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{B_1} t_{A_1, J_3} t_{I_1}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{B_1} t_{A_1, J_3} t_{I_1}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 0^I 1^J \rangle \langle I_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 0^I 1^J \rangle \langle I_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 0^I 1^J \rangle \langle I_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 0^I 1^J \rangle \langle I_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 0^I 1^J \rangle \langle I_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 0^I 1^J \rangle \langle I_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 0^I | \hat{g} | 0^J 1^J \rangle \langle I_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 0^I | \hat{g} | 0^J 1^J \rangle \langle I_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 0^I | \hat{g} | 0^J 1^J \rangle \langle I_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 0^I | \hat{g} | 0^J 1^J \rangle \langle I_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^I 1^I | \hat{g} | 0^J 1^J \rangle \langle I_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^I 1^I | \hat{g} | 0^J 1^J \rangle \langle I_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^I 1^I | \hat{g} | 0^J 1^J \rangle \langle I_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_1} t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|0^I 1^J\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_3}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_2,J_1)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^J 0^J \rangle \langle I_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^J 0^J \rangle \langle I_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^J 1^J \rangle \langle I_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^J 1^J \rangle \langle I_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^J 0^J \rangle \langle I_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^J 0^J \rangle \langle I_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^J 1^J \rangle \langle I_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^J 1^J \rangle \langle I_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1,J_1} t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1} t_{B_1} t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_1)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_1}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^J 0^J \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_1}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^J 0^J \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_1}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^J 1^J \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_1}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^J 1^J \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_1 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_1}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_1}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_1}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_1}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_1}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_1 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_1 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_1 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_1 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 1^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^J 0^J \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^J 0^J \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^J 1^J \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^J 1^J \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_1 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^J 0^J \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 0^J 0^J \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^J 1^J \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 1^I | \hat{g} | 1^J 1^J \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_1 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^I 0^J | \hat{g} | 1^I 0^J \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_1}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I1^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_2, J_2)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

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$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_2,J_3)\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^{+}\hat{1}_{\bar{\beta}}^{-}|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_{\bar{\beta}}^{+}\hat{1}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_{\bar{\beta}}^{+}\hat{1}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{A_1,B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_{\bar{\beta}}^{+}\hat{1}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^{+}\hat{1}_{\bar{\beta}}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^{+}\hat{1}_{\bar{\beta}}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_{\bar{\beta}}^{+}\hat{1}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^{+}\hat{1}_{\bar{\beta}}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^{+}\hat{1}_{\bar{\beta}}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}_{\bar{\beta}}^{+}\hat{1}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^{+}\hat{1}_{\bar{\beta}}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}_{\bar{\beta}}^{+}\hat{1}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^{+}\hat{1}_{\bar{\beta}}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_{\bar{\beta}}^{+}\hat{1}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_{\bar{\beta}}^{+}\hat{0}_{\bar{\beta}}^{-}|I_0\rangle\langle J_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,I_2}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_2)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_2}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_3)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

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$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_1,J_3}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^J|\hat{g}|1^I 1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^I0^J|\hat{g}|1^I1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_4,J_5)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_4|\hat{0}_\alpha^+\hat{1}_\beta^-|I_0\rangle\langle J_5|\hat{0}_\beta^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_4,J_5}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_4|\hat{0}_\alpha^+\hat{1}_\beta^-|I_0\rangle\langle J_5|\hat{1}_\beta^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_4,J_5}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_4|\hat{1}_\alpha^+\hat{0}_\beta^-|I_0\rangle\langle J_5|\hat{0}_\beta^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_4,J_5}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_4|\hat{1}_\alpha^+\hat{0}_\beta^-|I_0\rangle\langle J_5|\hat{1}_\beta^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_1}t_{I_4,J_5}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_4|\hat{0}_\alpha^+\hat{1}_\beta^-|I_0\rangle\langle J_5|\hat{0}_\beta^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_4,J_5}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_4|\hat{0}_\alpha^+\hat{1}_\beta^-|I_0\rangle\langle J_5|\hat{1}_\beta^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_4,J_5}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_4|\hat{1}_\alpha^+\hat{0}_\beta^-|I_0\rangle\langle J_5|\hat{0}_\beta^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_4,J_5}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_4|\hat{1}_\alpha^+\hat{0}_\beta^-|I_0\rangle\langle J_5|\hat{1}_\beta^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_1}t_{I_4,J_5}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_5,J_4)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|1^J0^J\rangle\langle I_5|\hat{0}_\beta^+\hat{1}_\alpha^-|I_0\rangle\langle J_4|\hat{0}_\alpha^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_5,J_4}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^I1^I|\hat{g}|0^J1^J\rangle\langle I_5|\hat{1}_\beta^+\hat{0}_\alpha^-|I_0\rangle\langle J_4|\hat{0}_\alpha^+\hat{1}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_5,J_4}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_5|\hat{0}_\beta^+\hat{1}_\alpha^-|I_0\rangle\langle J_4|\hat{1}_\alpha^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_5,J_4}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_5|\hat{1}_\beta^+\hat{0}_\alpha^-|I_0\rangle\langle J_4|\hat{1}_\alpha^+\hat{0}_\beta^-|J_0\rangle t_{A_1,B_1}t_{I_5,J_4}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_5|\hat{0}_\beta^+\hat{1}_\alpha^-|I_0\rangle\langle J_4|\hat{0}_\alpha^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_5,J_4}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_5|\hat{1}_\beta^+\hat{0}_\alpha^-|I_0\rangle\langle J_4|\hat{0}_\alpha^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_5,J_4}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|0^J 1^J\rangle\langle I_5|\hat{0}_\beta^+\hat{1}_\alpha^-|I_0\rangle\langle J_4|\hat{1}_\alpha^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_5,J_4}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 1^I|\hat{g}|1^J 0^J\rangle\langle I_5|\hat{1}_\beta^+\hat{0}_\alpha^-|I_0\rangle\langle J_4|\hat{1}_\alpha^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_1}t_{I_5,J_4}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_6,J_{15})\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^I|\hat{g}|0^J 0^J\rangle\langle I_6|\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle\langle J_{15}|\hat{0}_\alpha^+\hat{0}_\beta^+|J_0\rangle t_{A_1,B_1}t_{I_6,J_{15}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_6|\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle\langle J_{15}|\hat{0}_\alpha^+\hat{0}_\beta^+|J_0\rangle t_{A_1,B_1}t_{I_6,J_{15}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^I|\hat{g}|1^J 1^J\rangle\langle I_6|\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle\langle J_{15}|\hat{1}_\alpha^+\hat{1}_\beta^+|J_0\rangle t_{A_1,B_1}t_{I_6,J_{15}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_6|\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle\langle J_{15}|\hat{1}_\alpha^+\hat{1}_\beta^+|J_0\rangle t_{A_1,B_1}t_{I_6,J_{15}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^I|\hat{g}|0^J 0^J\rangle\langle I_6|\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle\langle J_{15}|\hat{0}_\alpha^+\hat{0}_\beta^+|J_0\rangle t_{A_1}t_{B_1}t_{I_6,J_{15}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I 1^I|\hat{g}|0^J 0^J\rangle\langle I_6|\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle\langle J_{15}|\hat{0}_\alpha^+\hat{0}_\beta^+|J_0\rangle t_{A_1}t_{B_1}t_{I_6,J_{15}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^I 0^I|\hat{g}|1^J 1^J\rangle\langle I_6|\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle\langle J_{15}|\hat{1}_\alpha^+\hat{1}_\beta^+|J_0\rangle t_{A_1}t_{B_1}t_{I_6,J_{15}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^I 1^I|\hat{g}|1^J 1^J\rangle\langle I_6|\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle\langle J_{15}|\hat{1}_\alpha^+\hat{1}_\beta^+|J_0\rangle t_{A_1}t_{B_1}t_{I_6,J_{15}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_9)\rangle =$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A|\hat{h}|0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{-1}{4}\sum_{I}\langle 0^A 1^A|\hat{g}|1^A 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{-1}{4}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^A\rangle\langle A_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{1}{4}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^A\rangle\langle A_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^A\rangle\langle A_{12}|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{1}{4}\sum_{I}\langle 0^A 1^A|\hat{g}|1^A 0^I\rangle\langle A_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^A 0^I\rangle\langle A_{12}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^I 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^B 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^B|\hat{g}|1^B 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_1,I_7)\rangle =$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A|\hat{h}|0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{-1}{4}\sum_{I}\langle 0^A 1^A|\hat{g}|1^A 0^I\rangle\langle A_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{-1}{4}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^A\rangle\langle A_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^A\rangle\langle A_{14}|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{1}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^A 0^I\rangle\langle A_{14}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{1}{4}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^A\rangle\langle A_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{1}{4}\sum_{I}\langle 0^A 1^A|\hat{g}|1^A 0^I\rangle\langle A_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^I 0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\alpha^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\alpha^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^B|\hat{g}|0^B0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|1^B0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^B|\hat{g}|0^I0^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A1^B|\hat{g}|0^I1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^B|\hat{g}|0^I0^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A1^B|\hat{g}|0^I1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_{14},I_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_{10})\rangle =$$

$$+\tfrac{1}{2}\sum_I\langle 0^A|\hat{h}|1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I\langle 0^A1^A|\hat{g}|1^A1^I\rangle\langle A_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I\langle 0^A1^A|\hat{g}|1^I1^A\rangle\langle A_{12}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\langle 0^A1^A|\hat{g}|1^I1^A\rangle\langle A_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I1^A\rangle\langle A_{12}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\langle 0^A1^A|\hat{g}|1^A1^I\rangle\langle A_{12}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^A1^I\rangle\langle A_{12}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^I1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|1^I1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^B|\hat{g}|0^B1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|1^B1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^B|\hat{g}|1^I0^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^B|\hat{g}|1^I0^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 1^B\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 1^B\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_{12},I_{10}}$$

$\langle (A_1,B_1)|\hat{H}|(A_{14},B_1,I_8)\rangle =$

$$+\frac{1}{2}\sum_I \langle 0^A|\hat{h}|1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{-1}{4}\sum_I \langle 0^A 1^A|\hat{g}|1^A 1^I\rangle\langle A_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{-1}{4}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^A\rangle\langle A_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^A\rangle\langle A_{14}|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{1}_\alpha^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^A 1^I\rangle\langle A_{14}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\alpha^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{1}{4}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^A\rangle\langle A_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{1}{4}\sum_I \langle 0^A 1^A|\hat{g}|1^A 1^I\rangle\langle A_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^I 1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\alpha^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^I 1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\alpha^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|0^J 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|1^J 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^A 1^J|\hat{g}|1^I 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^A 1^J|\hat{g}|1^I 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^B 1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^B 1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 0^B\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_1|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 1^B\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_1|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 0^B\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 1^B\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_{14},I_8}$$

$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_9)\rangle =$

$$+\frac{1}{2}\sum_I \langle 1^A|\hat{h}|0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{-1}{4}\sum_I \langle 0^A1^A|\hat{g}|0^A0^I\rangle\langle A_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{-1}{4}\sum_I \langle 0^A0^A|\hat{g}|1^A0^I\rangle\langle A_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^A|\hat{g}|1^A0^I\rangle\langle A_{11}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{1}{4}\sum_I \langle 0^A0^A|\hat{g}|1^A0^I\rangle\langle A_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{1}{4}\sum_I \langle 0^A1^A|\hat{g}|0^A0^I\rangle\langle A_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 0^A1^A|\hat{g}|0^A0^I\rangle\langle A_{11}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|0^I0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^I1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 1^A0^I|\hat{g}|0^J0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{-1}{2}\sum_I \langle 1^A0^B|\hat{g}|0^B0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{-1}{2}\sum_I \langle 1^A1^B|\hat{g}|1^B0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^B|\hat{g}|0^I0^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^B|\hat{g}|0^I0^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A1^B|\hat{g}|0^I1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A1^B|\hat{g}|0^I1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_7)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 1^A|\hat{h}|0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_7}$$

$$+\frac{-1}{2}\sum_I \langle 0^A0^A|\hat{g}|1^A0^I\rangle\langle A_{13}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_7}$$

$$+\frac{-1}{4}\sum_I \langle 0^A1^A|\hat{g}|0^A0^I\rangle\langle A_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_7}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|0^A0^I\rangle\langle A_{13}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_7}$$

$$+\frac{-1}{4}\sum_I \langle 0^A0^A|\hat{g}|1^A0^I\rangle\langle A_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_7}$$

$$+\tfrac{1}{4}\sum_I \langle 0^A 0^A|\hat{g}|1^A 0^I\rangle\langle A_{13}|\hat{0}^+_\beta \hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{1}{4}\sum_I \langle 0^A 1^A|\hat{g}|0^A 0^I\rangle\langle A_{13}|\hat{1}^+_\beta \hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^I 0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^+_\alpha \hat{0}^-_\beta \hat{0}^-_\alpha|I_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^+_\alpha \hat{1}^-_\beta \hat{1}^-_\alpha|I_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{-1}{2}\sum_I\sum_J \langle 1^A 0^I|\hat{g}|0^J 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{-1}{2}\sum_I\sum_J \langle 1^A 0^I|\hat{g}|1^J 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 1^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 1^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 1^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 1^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^B 0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^B 0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_1} t_{A_{13},I_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_{10})\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 1^A|\hat{h}|1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1} t_{A_{11},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I \langle 0^A 1^A|\hat{g}|0^A 1^I\rangle\langle A_{11}|\hat{0}^+_\alpha \hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1} t_{A_{11},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I \langle 0^A 0^A|\hat{g}|1^A 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha \hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1} t_{A_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^A 1^I\rangle\langle A_{11}|\hat{0}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1} t_{A_{11},I_{10}}$$

$$+\tfrac{1}{4}\sum_I \langle 0^A 0^A|\hat{g}|1^A 1^I\rangle\langle A_{11}|\hat{0}^+_\alpha \hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1} t_{A_{11},I_{10}}$$

$$+\tfrac{1}{4}\sum_I \langle 0^A 1^A|\hat{g}|0^A 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha \hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1} t_{A_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^A 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1} t_{A_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^I 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|I_0\rangle t_{B_1} t_{A_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^I 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|I_0\rangle t_{B_1} t_{A_{11},I_{10}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|0^J 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{B_1} t_{A_{11},I_{10}}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{11},I_{10}}$$

$$+\frac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|0^B1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_{10}}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^B1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I0^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I0^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^I1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^I1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{11},I_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_8)\rangle =$$

$$+\frac{1}{2}\sum_I\langle 1^A|\hat{h}|1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|1^A1^I\rangle\langle A_{13}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{-1}{4}\sum_I\langle 0^A1^A|\hat{g}|0^A1^I\rangle\langle A_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|0^A1^I\rangle\langle A_{13}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{-1}{4}\sum_I\langle 0^A0^A|\hat{g}|1^A1^I\rangle\langle A_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{1}{4}\sum_I\langle 0^A0^A|\hat{g}|1^A1^I\rangle\langle A_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{1}{4}\sum_I\langle 0^A1^A|\hat{g}|0^A1^I\rangle\langle A_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{-1}{2}\sum_I\langle 1^A0^I|\hat{g}|0^I1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^I1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 0^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 0^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{13},I_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_{12})\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A|\hat{h}|0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^A 0^I\rangle\langle A_9|\hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^A 0^I\rangle\langle A_9|\hat{0}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{-1}{4}\sum_I \langle 0^A 1^I|\hat{g}|0^I 1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha \hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^I 1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{-1}{4}\sum_I \langle 0^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{1}^+_\alpha \hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{1}^+_\alpha \hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{1}{4}\sum_I \langle 0^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha \hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{1}{4}\sum_I \langle 0^A 1^I|\hat{g}|0^I 1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{1}^+_\alpha \hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|0^J 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^J 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \sum_J \langle 0^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \sum_J \langle 0^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \sum_J \langle 0^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \sum_J \langle 0^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^B 0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^B 0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_1}t_{A_9,I_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_{14})\rangle =$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A|\hat{h}|0^I\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^A 0^I\rangle\langle A_7|\hat{0}_\alpha^+\hat{0}_{\bar{\beta}}^-\hat{0}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^A 0^I\rangle\langle A_7|\hat{0}_\alpha^+\hat{1}_{\bar{\beta}}^-\hat{1}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{-1}{4}\sum_{I}\langle 0^A 1^I|\hat{g}|0^I 1^I\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{-1}{4}\sum_{I}\langle 0^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle I_{14}|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{1}{4}\sum_{I}\langle 0^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{1}{4}\sum_{I}\langle 0^A 1^I|\hat{g}|0^I 1^I\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle I_{14}|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 1^I|\hat{g}|0^I 1^I\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle I_{14}|\hat{1}_\alpha^+\hat{0}_{\bar{\beta}}^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle I_{14}|\hat{1}_\alpha^+\hat{1}_{\bar{\beta}}^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 0^J\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_0|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^J\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_0|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_0|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_0|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^B 0^I\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle B_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 1^B|\hat{g}|1^B 0^I\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle B_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle B_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle B_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle B_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_7|\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle B_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle t_{B_1}t_{A_7,I_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_1,I_{12})\rangle =$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A|\hat{h}|0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|1^A 0^I\rangle\langle A_{10}|\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|1^A 0^I\rangle\langle A_{10}|\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{-1}{4}\sum_{I}\langle 1^A 1^I|\hat{g}|0^I 1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^I|\hat{g}|0^I 1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{-1}{4}\sum_{I}\langle 1^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{1}{4}\sum_{I}\langle 1^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{1}{4}\sum_{I}\langle 1^A 1^I|\hat{g}|0^I 1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|0^J 0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{1}{2}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 1^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 1^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^B 0^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|1^B 0^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_{14})\rangle =$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A|\hat{h}|0^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|1^A 0^I\rangle\langle A_8|\hat{1}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|1^A 0^I\rangle\langle A_8|\hat{1}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{-1}{4}\sum_{I}\langle 1^A 1^I|\hat{g}|0^I 1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{-1}{4}\sum_{I}\langle 1^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{1}{4}\sum_{I}\langle 1^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{1}{4}\sum_I \langle 1^A 1^I|\hat{g}|0^I 1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|0^I 1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^I 1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 1^A 0^I|\hat{g}|0^J 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 1^A 0^I|\hat{g}|1^J 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 1^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 1^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 1^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I\sum_J \langle 1^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^B 0^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^B 0^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{B_1}t_{A_8,I_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_1,I_{11})\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A|\hat{h}|1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^A 1^I\rangle\langle A_9|\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^A 1^I\rangle\langle A_9|\hat{0}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^I 1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\frac{-1}{4}\sum_I \langle 0^A 0^I|\hat{g}|0^I 1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\frac{-1}{4}\sum_I \langle 0^A 0^I|\hat{g}|1^I 0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^I 0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\frac{1}{4}\sum_I \langle 0^A 0^I|\hat{g}|1^I 0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\frac{1}{4}\sum_I \langle 0^A 0^I|\hat{g}|0^I 1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|0^J 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\frac{1}{2}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|1^J 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^B|\hat{g}|0^B1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A1^B|\hat{g}|1^B1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^B|\hat{g}|1^I0^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|1^I1^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^B|\hat{g}|1^I0^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|1^I1^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_9,I_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_{13})\rangle =$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A|\hat{h}|1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^A1^I\rangle\langle A_7|\hat{0}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^A1^I\rangle\langle A_7|\hat{0}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{-1}{4}\sum_I\langle 0^A0^I|\hat{g}|0^I1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{-1}{4}\sum_I\langle 0^A0^I|\hat{g}|1^I0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^I1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{1}{4}\sum_I\langle 0^A0^I|\hat{g}|1^I0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^I0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{1}{4}\sum_I\langle 0^A0^I|\hat{g}|0^I1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^B|\hat{g}|0^B1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_1}t_{A_7,I_{13}}$$

$+\frac{1}{2}\sum_{I}\langle0^A1^B|\hat{g}|1^B1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_1}t_{A_7,I_{13}}$

$+\frac{-1}{2}\sum_{I}\langle0^A0^B|\hat{g}|1^I0^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_1}t_{A_7,I_{13}}$

$+\frac{-1}{2}\sum_{I}\langle0^A0^B|\hat{g}|1^I0^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_1}t_{A_7,I_{13}}$

$+\frac{-1}{2}\sum_{I}\langle0^A1^B|\hat{g}|1^I1^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_1}t_{A_7,I_{13}}$

$+\frac{-1}{2}\sum_{I}\langle0^A1^B|\hat{g}|1^I1^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_1}t_{A_7,I_{13}}$

$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_{11})\rangle =$

$+\frac{-1}{2}\sum_{I}\langle1^A|\hat{h}|1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{-1}{2}\sum_{I}\langle0^A0^A|\hat{g}|1^A1^I\rangle\langle A_{10}|\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{-1}{2}\sum_{I}\langle1^A1^A|\hat{g}|1^A1^I\rangle\langle A_{10}|\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{-1}{2}\sum_{I}\langle1^A0^I|\hat{g}|0^I1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{-1}{4}\sum_{I}\langle1^A0^I|\hat{g}|0^I1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{-1}{4}\sum_{I}\langle1^A0^I|\hat{g}|1^I0^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{-1}{2}\sum_{I}\langle1^A0^I|\hat{g}|1^I0^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{1}{4}\sum_{I}\langle1^A0^I|\hat{g}|1^I0^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{1}{4}\sum_{I}\langle1^A0^I|\hat{g}|0^I1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{1}{2}\sum_{I}\sum_{J}\langle1^A1^I|\hat{g}|0^J0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{1}{2}\sum_{I}\sum_{J}\langle1^A1^I|\hat{g}|1^J1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{-1}{2}\sum_{I}\sum_{J}\langle1^A0^J|\hat{g}|1^I0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{-1}{2}\sum_{I}\sum_{J}\langle1^A1^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{-1}{2}\sum_{I}\sum_{J}\langle1^A0^J|\hat{g}|1^I0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{-1}{2}\sum_{I}\sum_{J}\langle1^A1^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{1}{2}\sum_{I}\langle1^A0^B|\hat{g}|0^B1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{1}{2}\sum_{I}\langle1^A1^B|\hat{g}|1^B1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{-1}{2}\sum_{I}\langle1^A0^B|\hat{g}|1^I0^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{-1}{2}\sum_{I}\langle1^A1^B|\hat{g}|1^I1^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{-1}{2}\sum_{I}\langle1^A0^B|\hat{g}|1^I0^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$+\frac{-1}{2}\sum_{I}\langle1^A1^B|\hat{g}|1^I1^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_1|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_1}t_{A_{10},I_{11}}$

$\langle (A_1, B_1) | \hat{H} | (A_8, B_1, I_{13}) \rangle =$

$+ \frac{-1}{2} \sum_I \langle 1^A | \hat{h} | 1^I \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{1}{2} \sum_I \langle 0^A 0^A | \hat{g} | 1^A 1^I \rangle \langle A_8 | \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{1}{2} \sum_I \langle 1^A 1^A | \hat{g} | 1^A 1^I \rangle \langle A_8 | \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{-1}{4} \sum_I \langle 1^A 0^I | \hat{g} | 0^I 1^I \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{-1}{4} \sum_I \langle 1^A 0^I | \hat{g} | 1^I 0^I \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 0^I 1^I \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{1}{4} \sum_I \langle 1^A 0^I | \hat{g} | 1^I 0^I \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^I 0^I \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{1}{4} \sum_I \langle 1^A 0^I | \hat{g} | 0^I 1^I \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{1}{2} \sum_I \sum_J \langle 1^A 1^I | \hat{g} | 0^J 0^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{1}{2} \sum_I \sum_J \langle 1^A 1^I | \hat{g} | 1^J 1^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{-1}{2} \sum_I \sum_J \langle 1^A 0^J | \hat{g} | 1^I 0^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{-1}{2} \sum_I \sum_J \langle 1^A 0^J | \hat{g} | 1^I 0^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{-1}{2} \sum_I \sum_J \langle 1^A 1^J | \hat{g} | 1^I 1^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{-1}{2} \sum_I \sum_J \langle 1^A 1^J | \hat{g} | 1^I 1^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 0^B 1^I \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 1^B 1^I \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{-1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 1^I 0^B \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{-1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 1^I 0^B \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{-1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 1^I 1^B \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle B_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$+ \frac{-1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 1^I 1^B \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle B_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle t_{B_1} t_{A_8, I_{13}}$

$\langle (A_1, B_1) | \hat{H} | (A_{15}, B_1, I_6) \rangle =$

$+ \frac{1}{2} \sum_I \langle 0^A 0^A | \hat{g} | 0^I 0^I \rangle \langle A_{15} | \hat{0}_\alpha^+ \hat{0}_\beta^+ | A_1 \rangle \langle I_6 | \hat{0}_\beta^- \hat{0}_\alpha^- | I_0 \rangle t_{B_1} t_{A_{15}, I_6}$

$+ \frac{1}{2} \sum_I \langle 0^A 0^A | \hat{g} | 1^I 1^I \rangle \langle A_{15} | \hat{0}_\alpha^+ \hat{0}_\beta^+ | A_1 \rangle \langle I_6 | \hat{1}_\beta^- \hat{1}_\alpha^- | I_0 \rangle t_{B_1} t_{A_{15}, I_6}$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_{15}|\hat{1}_\alpha^+\hat{1}_\beta^+|A_1\rangle\langle I_6|\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_{15},I_6}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_{15}|\hat{1}_\alpha^+\hat{1}_\beta^+|A_1\rangle\langle I_6|\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_{15},I_6}$$

$$\langle (A_1,B_1)|\hat{H}|(B_1,I_1)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 0^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 0^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^I 1^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^I 1^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 0^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 0^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^I 1^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^I 1^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(B_1, I_2)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A0^A|\hat{g}|0^I1^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A1^A|\hat{g}|0^I1^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A1^A|\hat{g}|0^I1^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A1^A|\hat{g}|0^I1^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A1^A|\hat{g}|0^I1^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{I_2}$$

$$\langle(A_1,B_1)|\hat{H}|(B_1,I_3)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|0^A1^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|1^A1^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1} t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1} t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1} t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{I_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_2, B_1, I_1)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_1}$$

$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_1}$

$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_1}$

$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_1}$

$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_1}$

$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_1}$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_3,B_1,I_1)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3}t_{B_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|1^I1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|1^I1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|0^I0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|0^I0^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|1^I1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|1^I1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|0^I0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|0^I0^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|1^I1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|1^I1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|0^I0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|0^I0^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|1^I1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|1^I1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_2,B_1,I_2)\rangle =$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_2,B_1,I_3)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_1,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_2,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_1}t_{I_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_3, B_1, I_2)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_3,B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_3,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_3}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_1}t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1} t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3} t_{B_1} t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1} t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\beta | I_0 \rangle t_{A_3} t_{B_1} t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1} t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3} t_{B_1} t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1} t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3} t_{B_1} t_{I_2}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1} t_{I_2}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1} t_{I_2}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1} t_{I_2}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1} t_{I_2}$$

$$\langle (A_1, B_1) | \hat{H} | (A_3, B_1, I_3) \rangle =$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 1^A 1^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | A_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{0}^+_\beta \hat{1}^-_\beta | A_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{1}^+_\beta \hat{0}^-_\beta | A_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | A_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3, B_1} t_{I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3,B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_3,I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^A1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_1}t_{I_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_4,B_1,I_5)\rangle =$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|1^I0^I\rangle\langle A_4|\hat{0}_\alpha^+\hat{1}_\beta^-|A_1\rangle\langle I_5|\hat{0}_\beta^+\hat{1}_\alpha^-|I_0\rangle t_{B_1}t_{A_4,I_5}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^A|\hat{g}|0^I1^I\rangle\langle A_4|\hat{0}_\alpha^+\hat{1}_\beta^-|A_1\rangle\langle I_5|\hat{1}_\beta^+\hat{0}_\alpha^-|I_0\rangle t_{B_1}t_{A_4,I_5}$$

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$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_4|\hat{1}^+_\alpha\hat{0}^-_\beta|A_1\rangle\langle I_5|\hat{0}^+_\beta\hat{1}^-_\alpha|I_0\rangle t_{B_1}t_{A_4,I_5}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_4|\hat{1}^+_\alpha\hat{0}^-_\beta|A_1\rangle\langle I_5|\hat{1}^+_\beta\hat{0}^-_\alpha|I_0\rangle t_{B_1}t_{A_4,I_5}$$

$$\langle(A_1,B_1)|\hat{H}|(A_5,B_1,I_4)\rangle =$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_5|\hat{0}^+_\beta\hat{1}^-_\alpha|A_1\rangle\langle I_4|\hat{0}^+_\alpha\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_5,I_4}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_5|\hat{1}^+_\beta\hat{0}^-_\alpha|A_1\rangle\langle I_4|\hat{0}^+_\alpha\hat{1}^-_\beta|I_0\rangle t_{B_1}t_{A_5,I_4}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 1^I\rangle\langle A_5|\hat{0}^+_\beta\hat{1}^-_\alpha|A_1\rangle\langle I_4|\hat{1}^+_\alpha\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_5,I_4}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|1^I 0^I\rangle\langle A_5|\hat{1}^+_\beta\hat{0}^-_\alpha|A_1\rangle\langle I_4|\hat{1}^+_\alpha\hat{0}^-_\beta|I_0\rangle t_{B_1}t_{A_5,I_4}$$

$$\langle(A_1,B_1)|\hat{H}|(A_6,B_1,I_{15})\rangle =$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^I 0^I\rangle\langle A_6|\hat{0}^-_\beta\hat{0}^-_\alpha|A_1\rangle\langle I_{15}|\hat{0}^+_\alpha\hat{0}^+_\beta|I_0\rangle t_{B_1}t_{A_6,I_{15}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^I 0^I\rangle\langle A_6|\hat{1}^-_\beta\hat{1}^-_\alpha|A_1\rangle\langle I_{15}|\hat{0}^+_\alpha\hat{0}^+_\beta|I_0\rangle t_{B_1}t_{A_6,I_{15}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|1^I 1^I\rangle\langle A_6|\hat{0}^-_\beta\hat{0}^-_\alpha|A_1\rangle\langle I_{15}|\hat{1}^+_\alpha\hat{1}^+_\beta|I_0\rangle t_{B_1}t_{A_6,I_{15}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|1^I 1^I\rangle\langle A_6|\hat{1}^-_\beta\hat{1}^-_\alpha|A_1\rangle\langle I_{15}|\hat{1}^+_\alpha\hat{1}^+_\beta|I_0\rangle t_{B_1}t_{A_6,I_{15}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_9)\rangle =$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B|\hat{h}|0^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{-1}{4}\sum_{I}\langle 0^B 1^B|\hat{g}|1^B 0^I\rangle\langle B_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{-1}{4}\sum_{I}\langle 0^B 1^B|\hat{g}|0^I 1^B\rangle\langle B_{12}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{1}{4}\sum_{I}\langle 0^B 1^B|\hat{g}|0^I 1^B\rangle\langle B_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|0^I 1^B\rangle\langle B_{12}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{1}{4}\sum_{I}\langle 0^B 1^B|\hat{g}|1^B 0^I\rangle\langle B_{12}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|1^B 0^I\rangle\langle B_{12}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^I 0^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|1^I 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A0^B|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A0^A|\hat{g}|0^B0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A1^A|\hat{g}|0^B0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A0^B|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{12},I_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{14},I_7)\rangle =$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B|\hat{h}|0^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{-1}{4}\sum_{I}\langle 0^B1^B|\hat{g}|1^B0^I\rangle\langle B_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{-1}{4}\sum_{I}\langle 0^B1^B|\hat{g}|0^I1^B\rangle\langle B_{14}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^B1^B|\hat{g}|0^I1^B\rangle\langle B_{14}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^B1^B|\hat{g}|1^B0^I\rangle\langle B_{14}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{1}{4}\sum_{I}\langle 0^B1^B|\hat{g}|0^I1^B\rangle\langle B_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{1}{4}\sum_{I}\langle 0^B1^B|\hat{g}|1^B0^I\rangle\langle B_{14}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^B0^I|\hat{g}|0^I0^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^B0^I|\hat{g}|1^I1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A0^B|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A0^B|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A0^B|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A0^B|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A0^A|\hat{g}|0^B0^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A1^A|\hat{g}|0^B0^I\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_{10})\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^B|\hat{h}|1^I\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I \langle 0^B1^B|\hat{g}|1^B1^I\rangle\langle B_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I \langle 0^B1^B|\hat{g}|1^I1^B\rangle\langle B_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I \langle 0^B1^B|\hat{g}|1^I1^B\rangle\langle B_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I1^B\rangle\langle B_{12}|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I \langle 0^B1^B|\hat{g}|1^B1^I\rangle\langle B_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^B1^I\rangle\langle B_{12}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|0^I1^I\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B1^I|\hat{g}|1^I1^I\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J \langle 0^B1^I|\hat{g}|0^J0^J\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J \langle 0^B1^I|\hat{g}|1^J1^J\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^B1^J|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^B1^J|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A0^B|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A0^B|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A0^A|\hat{g}|0^B1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A1^A|\hat{g}|0^B1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A0^B|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{12},I_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{14},I_8)\rangle =$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B|\hat{h}|1^I\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{-1}{4}\sum_{I}\langle 0^B 1^B|\hat{g}|1^B 1^I\rangle\langle B_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{-1}{4}\sum_{I}\langle 0^B 1^B|\hat{g}|1^I 1^B\rangle\langle B_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|1^I 1^B\rangle\langle B_{14}|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{1}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|1^B 1^I\rangle\langle B_{14}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{1}{4}\sum_{I}\langle 0^B 1^B|\hat{g}|1^I 1^B\rangle\langle B_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{1}{4}\sum_{I}\langle 0^B 1^B|\hat{g}|1^B 1^I\rangle\langle B_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^I 1^I\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\alpha^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^B 1^I|\hat{g}|1^I 1^I\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\alpha^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^J 0^J\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^J 1^J\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|1^I 0^J\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^B 1^J|\hat{g}|1^I 1^J\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|1^I 0^J\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^B 1^J|\hat{g}|1^I 1^J\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_{14},I_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{11},I_9)\rangle =$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^B|\hat{h}|0^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_{11},I_9}$$

$+\frac{-1}{4}\sum_{I}\langle 0^B 1^B|\hat{g}|0^B 0^I\rangle\langle B_{11}|\hat{0}^+_\alpha \hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{-1}{4}\sum_{I}\langle 0^B 0^B|\hat{g}|1^B 0^I\rangle\langle B_{11}|\hat{1}^+_\alpha \hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{1}{2}\sum_{I}\langle 0^B 0^B|\hat{g}|1^B 0^I\rangle\langle B_{11}|\hat{0}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{1}{4}\sum_{I}\langle 0^B 0^B|\hat{g}|1^B 0^I\rangle\langle B_{11}|\hat{0}^+_\alpha \hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{1}{4}\sum_{I}\langle 0^B 1^B|\hat{g}|0^B 0^I\rangle\langle B_{11}|\hat{1}^+_\alpha \hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|0^B 0^I\rangle\langle B_{11}|\hat{1}^+_\alpha \hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|0^I 0^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^I 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{-1}{2}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{1}{2}\sum_{I}\sum_{J}\langle 1^B 0^J|\hat{g}|0^I 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{1}{2}\sum_{I}\sum_{J}\langle 1^B 0^J|\hat{g}|0^I 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta \hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{1}{2}\sum_{I}\sum_{J}\langle 1^B 1^J|\hat{g}|0^I 1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{1}{2}\sum_{I}\sum_{J}\langle 1^B 1^J|\hat{g}|0^I 1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta \hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{1}{2}\sum_{I}\langle 0^A 1^B|\hat{g}|0^A 0^I\rangle\langle A_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{-1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|1^B 0^I\rangle\langle A_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{-1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|1^B 0^I\rangle\langle A_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{1}{2}\sum_{I}\langle 0^A 1^B|\hat{g}|0^A 0^I\rangle\langle A_1|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_9}$

$+\frac{1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_1|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_9}$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_{13},I_7)\rangle =$

$+\frac{1}{2}\sum_{I}\langle 1^B|\hat{h}|0^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_7}$

$+\frac{-1}{2}\sum_{I}\langle 0^B 0^B|\hat{g}|1^B 0^I\rangle\langle B_{13}|\hat{0}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_7}$

$+\frac{-1}{4}\sum_{I}\langle 0^B 1^B|\hat{g}|0^B 0^I\rangle\langle B_{13}|\hat{0}^+_\beta \hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_7}$

$+\frac{-1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|0^B 0^I\rangle\langle B_{13}|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{0}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_7}$

$+\frac{-1}{4}\sum_{I}\langle 0^B 0^B|\hat{g}|1^B 0^I\rangle\langle B_{13}|\hat{1}^+_\beta \hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_7}$

$+\frac{1}{4}\sum_{I}\langle 0^B 0^B|\hat{g}|1^B 0^I\rangle\langle B_{13}|\hat{0}^+_\beta \hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_7}$

$$+\tfrac{1}{4}\sum_I \langle 0^B 1^B|\hat{g}|0^B 0^I\rangle\langle B_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 0^I|\hat{g}|0^I 0^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^I 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$+\tfrac{-1}{2}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|0^J 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$+\tfrac{-1}{2}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 1^B 0^J|\hat{g}|0^I 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 1^B 1^J|\hat{g}|0^I 1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 1^B 0^J|\hat{g}|0^I 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \sum_J \langle 1^B 1^J|\hat{g}|0^I 1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^B 0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^B 0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{11},I_{10})\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 1^B|\hat{h}|1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I \langle 0^B 1^B|\hat{g}|0^B 1^I\rangle\langle B_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I \langle 0^B 0^B|\hat{g}|1^B 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^B|\hat{g}|1^B 1^I\rangle\langle B_{11}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\tfrac{1}{4}\sum_I \langle 0^B 0^B|\hat{g}|1^B 1^I\rangle\langle B_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\tfrac{1}{4}\sum_I \langle 0^B 1^B|\hat{g}|0^B 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^B 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|0^I 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^I 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\tfrac{-1}{2}\sum_I \sum_J \langle 1^B 1^I|\hat{g}|0^J 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\tfrac{-1}{2}\sum_I \sum_J \langle 1^B 1^I|\hat{g}|1^J 1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\langle 0^A1^B|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\frac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|1^B1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|1^B1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\langle 0^A1^B|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{11},I_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_8)\rangle =$$

$$+\frac{1}{2}\sum_I\langle 1^B|\hat{h}|1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{-1}{2}\sum_I\langle 0^B0^B|\hat{g}|1^B1^I\rangle\langle B_{13}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{-1}{4}\sum_I\langle 0^B1^B|\hat{g}|0^B1^I\rangle\langle B_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|0^B1^I\rangle\langle B_{13}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{-1}{4}\sum_I\langle 0^B0^B|\hat{g}|1^B1^I\rangle\langle B_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{1}{4}\sum_I\langle 0^B0^B|\hat{g}|1^B1^I\rangle\langle B_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{1}{4}\sum_I\langle 0^B1^B|\hat{g}|0^B1^I\rangle\langle B_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{-1}{2}\sum_I\langle 1^B0^I|\hat{g}|0^I1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{-1}{2}\sum_I\langle 1^B1^I|\hat{g}|1^I1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\frac{1}{2}\sum_I\langle 0^A1^B|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^B 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^B 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_{13},I_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_{12})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B|\hat{h}|0^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^B 0^I\rangle\langle B_9|\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^B 0^I\rangle\langle B_9|\hat{0}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{4}\sum_I \langle 0^B 1^I|\hat{g}|0^I 1^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^I 1^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{4}\sum_I \langle 0^B 0^I|\hat{g}|1^I 1^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^I 1^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{1}{4}\sum_I \langle 0^B 0^I|\hat{g}|1^I 1^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{1}{4}\sum_I \langle 0^B 1^I|\hat{g}|0^I 1^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|0^J 0^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J \langle 0^B 0^J|\hat{g}|0^I 0^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J \langle 0^B 1^J|\hat{g}|0^I 1^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J \langle 0^B 0^J|\hat{g}|0^I 0^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J \langle 0^B 1^J|\hat{g}|0^I 1^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^A 0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^B 0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^B 0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^A 0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{12}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_7, I_{14})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B|\hat{h}|0^I\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^B 0^I\rangle\langle B_7|\hat{0}_{\alpha}^+\hat{0}_{\beta}^-\hat{0}_{\alpha}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^B 0^I\rangle\langle B_7|\hat{0}_{\alpha}^+\hat{1}_{\beta}^-\hat{1}_{\alpha}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I \langle 0^B 1^I|\hat{g}|0^I 1^I\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+\hat{1}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I \langle 0^B 0^I|\hat{g}|1^I 1^I\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{1}_{\beta}^+\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{1}{4}\sum_I \langle 0^B 0^I|\hat{g}|1^I 1^I\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+\hat{1}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{1}{4}\sum_I \langle 0^B 1^I|\hat{g}|0^I 1^I\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{1}_{\beta}^+\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^I 1^I\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{1}_{\alpha}^+\hat{0}_{\beta}^+\hat{1}_{\alpha}^-|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^I 1^I\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{1}_{\alpha}^+\hat{1}_{\beta}^+\hat{0}_{\alpha}^-|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|0^J 0^J\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_0|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|J_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_0|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|J_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J \langle 0^B 0^J|\hat{g}|0^I 0^J\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_0|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|J_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J \langle 0^B 0^J|\hat{g}|0^I 0^J\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_0|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J \langle 0^B 1^J|\hat{g}|0^I 1^J\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_0|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|J_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I\sum_J \langle 0^B 1^J|\hat{g}|0^I 1^J\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_0|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^A 0^I\rangle\langle A_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|A_1\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^A 0^I\rangle\langle A_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|A_1\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|A_1\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|A_1\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^B 0^I\rangle\langle A_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|A_1\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^B 0^I\rangle\langle A_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|A_1\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle t_{A_1} t_{B_7,I_{14}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{12})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B|\hat{h}|0^I\rangle\langle B_{10}|\hat{1}_{\alpha}^-|B_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|1^B 0^I\rangle\langle B_{10}|\hat{1}_{\beta}^+\hat{0}_{\beta}^-\hat{0}_{\alpha}^-|B_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 1^B 0^I \rangle \langle B_{10} | \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{4} \sum_I \langle 1^B 1^I | \hat{g} | 0^I 1^I \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{2} \sum_I \langle 1^B 1^I | \hat{g} | 0^I 1^I \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{4} \sum_I \langle 1^B 0^I | \hat{g} | 1^I 1^I \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^I 1^I \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{1}{4} \sum_I \langle 1^B 0^I | \hat{g} | 1^I 1^I \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{1}{4} \sum_I \langle 1^B 1^I | \hat{g} | 0^I 1^I \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{1}{2} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 0^J 0^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{1}{2} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 1^J 1^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{2} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 0^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{2} \sum_I \sum_J \langle 1^B 1^J | \hat{g} | 0^I 1^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{2} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 0^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{2} \sum_I \sum_J \langle 1^B 1^J | \hat{g} | 0^I 1^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 1^B | \hat{g} | 0^A 0^I \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 1^A 0^I \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{1}{2} \sum_I \langle 0^A 0^A | \hat{g} | 1^B 0^I \rangle \langle A_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | A_1 \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 1^A | \hat{g} | 1^B 0^I \rangle \langle A_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | A_1 \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 1^B | \hat{g} | 0^A 0^I \rangle \langle A_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | A_1 \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 1^A 0^I \rangle \langle A_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | A_1 \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle t_{A_1} t_{B_{10},I_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_8, I_{14}) \rangle =$$

$$+ \frac{-1}{2} \sum_I \langle 1^B | \hat{h} | 0^I \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle t_{A_1} t_{B_8,I_{14}}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^B | \hat{g} | 1^B 0^I \rangle \langle B_8 | \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle t_{A_1} t_{B_8,I_{14}}$$

$$+ \frac{1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 1^B 0^I \rangle \langle B_8 | \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle t_{A_1} t_{B_8,I_{14}}$$

$$+ \frac{-1}{4} \sum_I \langle 1^B 1^I | \hat{g} | 0^I 1^I \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_1} t_{B_8,I_{14}}$$

$$+ \frac{-1}{4} \sum_I \langle 1^B 0^I | \hat{g} | 1^I 1^I \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_1} t_{B_8,I_{14}}$$

$$+ \frac{1}{4} \sum_I \langle 1^B 0^I | \hat{g} | 1^I 1^I \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_1} t_{B_8,I_{14}}$$

$$+ \frac{1}{4} \sum_I \langle 1^B 1^I | \hat{g} | 0^I 1^I \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_1} t_{B_8,I_{14}}$$

$$+\frac{1}{2}\sum_I\langle 1^B1^I|\hat{g}|0^I1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_8,I_{14}}$$

$$+\frac{1}{2}\sum_I\langle 1^B0^I|\hat{g}|1^I1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_8,I_{14}}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_8,I_{14}}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_1}t_{B_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_1}t_{B_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_1}t_{B_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_1}t_{B_8,I_{14}}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^A|\hat{g}|1^B0^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_1}t_{B_8,I_{14}}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^A|\hat{g}|1^B0^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_1}t_{B_8,I_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_9,I_{11})\rangle =$$

$$+\frac{-1}{2}\sum_I\langle 0^B|\hat{h}|1^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\frac{-1}{2}\sum_I\langle 0^B0^B|\hat{g}|0^B1^I\rangle\langle B_9|\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\frac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|1^B1^I\rangle\langle B_9|\hat{0}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\frac{-1}{2}\sum_I\langle 0^B0^I|\hat{g}|0^I1^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\frac{-1}{4}\sum_I\langle 0^B0^I|\hat{g}|0^I1^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\frac{-1}{4}\sum_I\langle 0^B0^I|\hat{g}|1^I0^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\frac{-1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^I0^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\frac{1}{4}\sum_I\langle 0^B0^I|\hat{g}|1^I0^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\frac{1}{4}\sum_I\langle 0^B0^I|\hat{g}|0^I1^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J0^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\frac{1}{2}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J1^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\frac{-1}{2}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^B 1^J|\hat{g}|1^I 1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|1^I 0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^B 1^J|\hat{g}|1^I 1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_1}t_{B_9,I_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_{13})\rangle =$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^B|\hat{h}|1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B 0^B|\hat{g}|0^B 1^I\rangle\langle B_7|\hat{0}_\alpha^+\hat{0}_\beta^-\hat{0}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|1^B 1^I\rangle\langle B_7|\hat{0}_\alpha^+\hat{1}_\beta^-\hat{1}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\langle 0^B 0^I|\hat{g}|0^I 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\langle 0^B 0^I|\hat{g}|1^I 0^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|0^I 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\langle 0^B 0^I|\hat{g}|1^I 0^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|1^I 0^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\langle 0^B 0^I|\hat{g}|0^I 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^J 0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^J 1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|1^I 0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_0|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|1^I 0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^B 1^J|\hat{g}|1^I 1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_0|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 0^B 1^J|\hat{g}|1^I 1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{A_1}t_{B_7,I_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{10},I_{11})\rangle =$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^B|\hat{h}|1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^B 0^B|\hat{g}|1^B 1^I\rangle\langle B_{10}|\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^B 1^B|\hat{g}|1^B 1^I\rangle\langle B_{10}|\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|0^I 1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\langle 1^B 0^I|\hat{g}|0^I 1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\langle 1^B 0^I|\hat{g}|1^I 0^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^B 0^I|\hat{g}|1^I 0^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\langle 1^B 0^I|\hat{g}|1^I 0^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\langle 1^B 0^I|\hat{g}|0^I 1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|0^J 0^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{1}{2}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^J 1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 1^B 0^J|\hat{g}|1^I 0^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 1^B 1^J|\hat{g}|1^I 1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 1^B 0^J|\hat{g}|1^I 0^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\sum_{J}\langle 1^B 1^J|\hat{g}|1^I 1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^B|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|1^B 1^I\rangle\langle A_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|1^B 1^I\rangle\langle A_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 1^B|\hat{g}|0^A 1^I\rangle\langle A_1|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_1|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_1}t_{B_{10},I_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{13})\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 1^B|\hat{h}|1^I\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^B|\hat{g}|1^B1^I\rangle\langle B_8|\hat{1}_{\alpha}^+\hat{0}_{\bar{\beta}}^-\hat{0}_{\alpha}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{1}{2}\sum_I \langle 1^B1^B|\hat{g}|1^B1^I\rangle\langle B_8|\hat{1}_{\alpha}^+\hat{1}_{\bar{\beta}}^-\hat{1}_{\alpha}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{-1}{4}\sum_I \langle 1^B0^I|\hat{g}|0^I1^I\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{-1}{4}\sum_I \langle 1^B0^I|\hat{g}|1^I0^I\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{1}{2}\sum_I \langle 1^B0^I|\hat{g}|0^I1^I\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{0}_{\alpha}^+\hat{0}_{\bar{\beta}}^+\hat{1}_{\alpha}^-|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{1}{4}\sum_I \langle 1^B0^I|\hat{g}|1^I0^I\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{1}{2}\sum_I \langle 1^B0^I|\hat{g}|1^I0^I\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{0}_{\alpha}^+\hat{1}_{\bar{\beta}}^+\hat{0}_{\alpha}^-|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{1}{4}\sum_I \langle 1^B0^I|\hat{g}|0^I1^I\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 1^B1^I|\hat{g}|0^J0^J\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle\langle J_0|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{1}{2}\sum_I \sum_J \langle 1^B1^I|\hat{g}|1^J1^J\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle\langle J_0|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{-1}{2}\sum_I \sum_J \langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle\langle J_0|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{-1}{2}\sum_I \sum_J \langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle\langle J_0|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{-1}{2}\sum_I \sum_J \langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle\langle J_0|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{-1}{2}\sum_I \sum_J \langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle\langle J_0|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^B|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A1^B|\hat{g}|0^A1^I\rangle\langle A_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|A_1\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{-1}{2}\sum_I \langle 1^A1^B|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|A_1\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{-1}{2}\sum_I \langle 1^A1^B|\hat{g}|1^A1^I\rangle\langle A_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|A_1\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{1}{2}\sum_I \langle 0^A0^A|\hat{g}|1^B1^I\rangle\langle A_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|A_1\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$+\frac{1}{2}\sum_I \langle 1^A1^A|\hat{g}|1^B1^I\rangle\langle A_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|A_1\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{13}|\hat{1}_{\bar{\beta}}^+|I_0\rangle t_{A_1}t_{B_8,I_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{15}, I_6)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^B0^B|\hat{g}|0^I0^I\rangle\langle B_{15}|\hat{0}_{\alpha}^+\hat{0}_{\bar{\beta}}^+|B_1\rangle\langle I_6|\hat{0}_{\bar{\beta}}^-\hat{0}_{\alpha}^-|I_0\rangle t_{A_1}t_{B_{15},I_6}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^B|\hat{g}|1^I1^I\rangle\langle B_{15}|\hat{0}_{\alpha}^+\hat{0}_{\bar{\beta}}^+|B_1\rangle\langle I_6|\hat{1}_{\bar{\beta}}^-\hat{1}_{\alpha}^-|I_0\rangle t_{A_1}t_{B_{15},I_6}$$

$$+\frac{1}{2}\sum_I \langle 1^B1^B|\hat{g}|0^I0^I\rangle\langle B_{15}|\hat{1}_{\alpha}^+\hat{1}_{\bar{\beta}}^+|B_1\rangle\langle I_6|\hat{0}_{\bar{\beta}}^-\hat{0}_{\alpha}^-|I_0\rangle t_{A_1}t_{B_{15},I_6}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 1^B|\hat{g}|1^I 1^I\rangle \langle B_{15}|\hat{1}^+_\alpha \hat{1}^+_\beta|B_1\rangle \langle I_6|\hat{1}^-_\beta \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_{15},I_6}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,I_1)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle \langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle \langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle \langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle \langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 0^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 0^I\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|1^I 1^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|1^I 1^I\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 0^I\rangle \langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 0^I\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|1^I 1^I\rangle \langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|1^I 1^I\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 0^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 0^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|1^I 1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|1^I 1^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 0^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, I_2)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1, I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B0^I|\hat{g}|1^B1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B0^I|\hat{g}|1^B1^I\rangle\langle B_0|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B0^I|\hat{g}|1^B1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B0^I|\hat{g}|1^B1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B0^I|\hat{g}|1^B1^I\rangle\langle B_0|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B0^I|\hat{g}|1^B1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B0^B|\hat{g}|0^I1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B0^B|\hat{g}|0^I1^I\rangle\langle B_0|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B0^B|\hat{g}|0^I1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B0^B|\hat{g}|0^I1^I\rangle\langle B_0|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^B1^B|\hat{g}|0^I1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^B1^B|\hat{g}|0^I1^I\rangle\langle B_0|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^B1^B|\hat{g}|0^I1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^B1^B|\hat{g}|0^I1^I\rangle\langle B_0|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B0^I|\hat{g}|1^B1^I\rangle\langle B_0|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B0^I|\hat{g}|1^B1^I\rangle\langle B_0|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B0^I|\hat{g}|0^B1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B0^I|\hat{g}|1^B1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^B0^I|\hat{g}|1^B1^I\rangle\langle B_0|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,I_3)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle \langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle \langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle \langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 1^I\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|0^B 1^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle \langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle \langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle \langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^B 0^I|\hat{g}|1^B 1^I\rangle \langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 1^I\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 0^B | \hat{g} | 0^I 1^I \rangle \langle B_0 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_0 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_0 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 0^B 1^I \rangle \langle B_0 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_0 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 0^B 1^I \rangle \langle B_0 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_0 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{I_3}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_2, I_1) \rangle =$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 0^I \rangle \langle B_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 0^I \rangle \langle B_2 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 1^I \rangle \langle B_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 1^I \rangle \langle B_2 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 0^I \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 0^I \rangle \langle B_2 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 1^I \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 1^I \rangle \langle B_2 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_2, I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 1^I | \hat{g} | 1^B 1^I \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 0^I \rangle \langle B_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 0^I \rangle \langle B_2 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 1^I \rangle \langle B_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 1^I \rangle \langle B_2 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 0^I \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 0^I \rangle \langle B_2 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 1^I \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 1^I \rangle \langle B_2 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{1}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+ \frac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 0^I \rangle \langle B_2 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1, B_2} t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|0^I0^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{-1}{2}\sum_I\langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_3,I_1)\rangle=$$

$$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_I\langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_3,I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1,B_3}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_1}$$

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$$+ \frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle \langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_3} t_{A_1,I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle \langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_1,I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle \langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{B_3} t_{A_1,I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle \langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_3} t_{A_1,I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle \langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{B_3} t_{A_1,I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle \langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_1,I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle \langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_1,I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle \langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_3} t_{A_1,I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle \langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_3} t_{A_1,I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle \langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle \langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle \langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle \langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle \langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle \langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle \langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle \langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle \langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle \langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle \langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle \langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle \langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle \langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle \langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle \langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle \langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 0^I\rangle \langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle \langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 1^I\rangle \langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 0^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^B 1^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_3} t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_2, I_2)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_2, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_2,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_2,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_2}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_2,I_3)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_2,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_2}t_{I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{B_2}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_2}t_{I_3}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_3, I_2)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1} t_{B_3, I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1, B_3} t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1, B_3} t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1, B_3} t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|0^I1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I0^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 0^I \rangle \langle B_3 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_3} t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_3} t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_3 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_3} t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_3} t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_3 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_3} t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 0^I \rangle \langle B_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_3} t_{I_2}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 0^I \rangle \langle B_3 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_3} t_{I_2}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_3} t_{I_2}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_3} t_{I_2}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_3} t_{I_2}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_3} t_{I_2}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_3, I_3) \rangle =$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 0^B 0^I | \hat{g} | 1^B 1^I \rangle \langle B_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 0^I \rangle \langle B_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 1^I 0^I \rangle \langle B_3 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 0^B 1^B | \hat{g} | 0^I 1^I \rangle \langle B_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_3, I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle t_{A_1}t_{B_3,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|B_1\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_1}t_{B_3,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle t_{A_1}t_{B_3,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|B_1\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle t_{A_1}t_{B_3,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle t_{A_1}t_{B_3,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_1}t_{B_3,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_1}t_{B_3,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle t_{A_1}t_{B_3,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle t_{A_1}t_{B_3,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|B_1\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|B_1\rangle\langle I_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|B_1\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|B_1\rangle\langle I_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|B_1\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|B_1\rangle\langle I_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|B_1\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|B_1\rangle\langle I_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|B_1\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|B_1\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|B_1\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{0}^+_{\bar{\beta}}\hat{1}^-_{\bar{\beta}}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|B_1\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|B_1\rangle\langle I_3|\hat{1}^+_{\bar{\beta}}\hat{0}^-_{\bar{\beta}}|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_1,B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{B_3}t_{A_1,I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^B 0^I|\hat{g}|1^B 1^I\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_3}t_{I_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_4,I_5)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_4|\hat{0}^+_\alpha \hat{1}^-_\beta|B_1\rangle\langle I_5|\hat{0}^+_\beta \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_4,I_5}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_4|\hat{0}^+_\alpha \hat{1}^-_\beta|B_1\rangle\langle I_5|\hat{1}^+_\beta \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_4,I_5}$$

$$+\frac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_4|\hat{1}^+_\alpha \hat{0}^-_\beta|B_1\rangle\langle I_5|\hat{0}^+_\beta \hat{1}^-_\alpha|I_0\rangle t_{A_1}t_{B_4,I_5}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_4|\hat{1}^+_\alpha \hat{0}^-_\beta|B_1\rangle\langle I_5|\hat{1}^+_\beta \hat{0}^-_\alpha|I_0\rangle t_{A_1}t_{B_4,I_5}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_5,I_4)\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_5|\hat{0}^+_\beta \hat{1}^-_\alpha|B_1\rangle\langle I_4|\hat{0}^+_\alpha \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_5,I_4}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_5|\hat{1}^+_\beta \hat{0}^-_\alpha|B_1\rangle\langle I_4|\hat{0}^+_\alpha \hat{1}^-_\beta|I_0\rangle t_{A_1}t_{B_5,I_4}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|0^I 1^I\rangle\langle B_5|\hat{0}^+_\beta \hat{1}^-_\alpha|B_1\rangle\langle I_4|\hat{1}^+_\alpha \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_5,I_4}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^B 1^B|\hat{g}|1^I 0^I\rangle\langle B_5|\hat{1}^+_\beta \hat{0}^-_\alpha|B_1\rangle\langle I_4|\hat{1}^+_\alpha \hat{0}^-_\beta|I_0\rangle t_{A_1}t_{B_5,I_4}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_6,I_{15})\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^B|\hat{g}|0^I 0^I\rangle\langle B_6|\hat{0}^-_\beta \hat{0}^-_\alpha|B_1\rangle\langle I_{15}|\hat{0}^+_\alpha \hat{0}^+_\beta|I_0\rangle t_{A_1}t_{B_6,I_{15}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 1^B|\hat{g}|0^I 0^I\rangle\langle B_6|\hat{1}^-_\beta \hat{1}^-_\alpha|B_1\rangle\langle I_{15}|\hat{0}^+_\alpha \hat{0}^+_\beta|I_0\rangle t_{A_1}t_{B_6,I_{15}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^B 0^B|\hat{g}|1^I 1^I\rangle\langle B_6|\hat{0}^-_\beta \hat{0}^-_\alpha|B_1\rangle\langle I_{15}|\hat{1}^+_\alpha \hat{1}^+_\beta|I_0\rangle t_{A_1}t_{B_6,I_{15}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^B 1^B|\hat{g}|1^I 1^I\rangle\langle B_6|\hat{1}^-_\beta \hat{1}^-_\alpha|B_1\rangle\langle I_{15}|\hat{1}^+_\alpha \hat{1}^+_\beta|I_0\rangle t_{A_1}t_{B_6,I_{15}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_9)\rangle =$$

$$+\tfrac{1}{2}\langle 0^A|\hat{h}|0^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle t_{A_{12},B_9}$$

$$+\tfrac{-1}{4}\langle 0^A 1^A|\hat{g}|1^A 0^B\rangle\langle A_{12}|\hat{0}^+_\alpha \hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle t_{A_{12},B_9}$$

$$+\tfrac{-1}{4}\langle 0^A 1^A|\hat{g}|0^B 1^A\rangle\langle A_{12}|\hat{1}^+_\alpha \hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle t_{A_{12},B_9}$$

$$+\tfrac{1}{4}\langle 0^A 1^A|\hat{g}|0^B 1^A\rangle\langle A_{12}|\hat{0}^+_\alpha \hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle t_{A_{12},B_9}$$

$$+\tfrac{1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^A\rangle\langle A_{12}|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle t_{A_{12},B_9}$$

$$+\tfrac{1}{4}\langle 0^A 1^A|\hat{g}|1^A 0^B\rangle\langle A_{12}|\hat{1}^+_\alpha \hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle t_{A_{12},B_9}$$

$$+\tfrac{1}{2}\langle 0^A 1^A|\hat{g}|1^A 0^B\rangle\langle A_{12}|\hat{1}^+_\alpha \hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle t_{A_{12},B_9}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^B 0^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha|B_1\rangle t_{A_{12},B_9}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^B 1^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^+_\beta \hat{1}^-_\beta \hat{1}^-_\alpha|B_1\rangle t_{A_{12},B_9}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_{12},B_9}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_{12},B_9}$$

$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{12},B_9}$

$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{12},B_9}$

$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{12},B_9}$

$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{12},B_9}$

$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_7)\rangle =$

$+\frac{1}{2}\langle 0^A|\hat{h}|0^B\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle t_{A_{14},B_7}$

$+\frac{-1}{4}\langle 0^A 1^A|\hat{g}|1^A 0^B\rangle\langle A_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle t_{A_{14},B_7}$

$+\frac{-1}{4}\langle 0^A 1^A|\hat{g}|0^B 1^A\rangle\langle A_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle t_{A_{14},B_7}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^A\rangle\langle A_{14}|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{1}_\alpha^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle t_{A_{14},B_7}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^A 0^B\rangle\langle A_{14}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\alpha^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle t_{A_{14},B_7}$

$+\frac{1}{4}\langle 0^A 1^A|\hat{g}|0^B 1^A\rangle\langle A_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle t_{A_{14},B_7}$

$+\frac{1}{4}\langle 0^A 1^A|\hat{g}|1^A 0^B\rangle\langle A_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle t_{A_{14},B_7}$

$+\frac{-1}{2}\langle 0^A 0^B|\hat{g}|0^B 0^B\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\alpha^+\hat{0}_\beta^-\hat{0}_\alpha^-|B_1\rangle t_{A_{14},B_7}$

$+\frac{-1}{2}\langle 0^A 0^B|\hat{g}|1^B 1^B\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\alpha^+\hat{1}_\beta^-\hat{1}_\alpha^-|B_1\rangle t_{A_{14},B_7}$

$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{14},B_7}$

$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{14},B_7}$

$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{14},B_7}$

$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{14},B_7}$

$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{14},B_7}$

$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{14},B_7}$

$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{10})\rangle =$

$+\frac{1}{2}\langle 0^A|\hat{h}|1^B\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle t_{A_{12},B_{10}}$

$+\frac{-1}{4}\langle 0^A 1^A|\hat{g}|1^A 1^B\rangle\langle A_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle t_{A_{12},B_{10}}$

$+\frac{-1}{4}\langle 0^A 1^A|\hat{g}|1^B 1^A\rangle\langle A_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle t_{A_{12},B_{10}}$

$+\frac{1}{4}\langle 0^A 1^A|\hat{g}|1^B 1^A\rangle\langle A_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle t_{A_{12},B_{10}}$

$+\frac{1}{2}\langle 0^A1^A|\hat{g}|1^B1^A\rangle\langle A_{12}|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle t_{A_{12},B_{10}}$

$+\frac{1}{4}\langle 0^A1^A|\hat{g}|1^A1^B\rangle\langle A_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle t_{A_{12},B_{10}}$

$+\frac{1}{2}\langle 0^A1^A|\hat{g}|1^A1^B\rangle\langle A_{12}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle t_{A_{12},B_{10}}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|0^B1^B\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|B_1\rangle t_{A_{12},B_{10}}$

$+\frac{1}{2}\langle 0^A1^B|\hat{g}|1^B1^B\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|B_1\rangle t_{A_{12},B_{10}}$

$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{12},B_{10}}$

$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{12},B_{10}}$

$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|1^B1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{12},B_{10}}$

$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|1^B1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{12},B_{10}}$

$+\frac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|0^I0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{12},B_{10}}$

$+\frac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|1^I1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{12},B_{10}}$

$\langle (A_1,B_1)|\hat{H}|(A_{14},B_8)\rangle =$

$+\frac{1}{2}\langle 0^A|\hat{h}|1^B\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle t_{A_{14},B_8}$

$+\frac{-1}{4}\langle 0^A1^A|\hat{g}|1^A1^B\rangle\langle A_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle t_{A_{14},B_8}$

$+\frac{-1}{4}\langle 0^A1^A|\hat{g}|1^B1^A\rangle\langle A_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle t_{A_{14},B_8}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|1^B1^A\rangle\langle A_{14}|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{1}_\alpha^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle t_{A_{14},B_8}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|1^A1^B\rangle\langle A_{14}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\alpha^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle t_{A_{14},B_8}$

$+\frac{1}{4}\langle 0^A1^A|\hat{g}|1^B1^A\rangle\langle A_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle t_{A_{14},B_8}$

$+\frac{1}{4}\langle 0^A1^A|\hat{g}|1^A1^B\rangle\langle A_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle t_{A_{14},B_8}$

$+\frac{-1}{2}\langle 0^A0^B|\hat{g}|0^B1^B\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\alpha^+\hat{0}_\beta^-\hat{0}_\alpha^-|B_1\rangle t_{A_{14},B_8}$

$+\frac{-1}{2}\langle 0^A1^B|\hat{g}|1^B1^B\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\alpha^+\hat{1}_\beta^-\hat{1}_\alpha^-|B_1\rangle t_{A_{14},B_8}$

$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{14},B_8}$

$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|1^B1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{14},B_8}$

$+\frac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|0^I0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{14},B_8}$

$+\frac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|1^I1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{14},B_8}$

$+\frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{14},B_8}$

$+\frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|1^B1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{14},B_8}$

$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_9)\rangle =$

$+\frac{1}{2}\langle 1^A|\hat{h}|0^B\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle t_{A_{11},B_9}$

$+\frac{-1}{4}\langle 0^A 1^A|\hat{g}|0^A 0^B\rangle\langle A_{11}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle t_{A_{11},B_9}$

$+\frac{-1}{4}\langle 0^A 0^A|\hat{g}|1^A 0^B\rangle\langle A_{11}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle t_{A_{11},B_9}$

$+\frac{1}{2}\langle 0^A 0^A|\hat{g}|1^A 0^B\rangle\langle A_{11}|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle t_{A_{11},B_9}$

$+\frac{1}{4}\langle 0^A 0^A|\hat{g}|1^A 0^B\rangle\langle A_{11}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle t_{A_{11},B_9}$

$+\frac{1}{4}\langle 0^A 1^A|\hat{g}|0^A 0^B\rangle\langle A_{11}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle t_{A_{11},B_9}$

$+\frac{1}{2}\langle 0^A 1^A|\hat{g}|0^A 0^B\rangle\langle A_{11}|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle t_{A_{11},B_9}$

$+\frac{1}{2}\langle 1^A 0^B|\hat{g}|0^B 0^B\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|B_1\rangle t_{A_{11},B_9}$

$+\frac{1}{2}\langle 1^A 0^B|\hat{g}|1^B 1^B\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|B_1\rangle t_{A_{11},B_9}$

$+\frac{1}{2}\sum_I\langle 1^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{11},B_9}$

$+\frac{1}{2}\sum_I\langle 1^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{11},B_9}$

$+\frac{1}{2}\sum_I\langle 1^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{11},B_9}$

$+\frac{1}{2}\sum_I\langle 1^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{11},B_9}$

$+\frac{-1}{2}\sum_I\langle 1^A 0^B|\hat{g}|0^I 0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{11},B_9}$

$+\frac{-1}{2}\sum_I\langle 1^A 0^B|\hat{g}|1^I 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{11},B_9}$

$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_7)\rangle =$

$+\frac{1}{2}\langle 1^A|\hat{h}|0^B\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle t_{A_{13},B_7}$

$+\frac{-1}{2}\langle 0^A 0^A|\hat{g}|1^A 0^B\rangle\langle A_{13}|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{1}_\alpha^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle t_{A_{13},B_7}$

$+\frac{-1}{4}\langle 0^A 1^A|\hat{g}|0^A 0^B\rangle\langle A_{13}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle t_{A_{13},B_7}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^A 0^B\rangle\langle A_{13}|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{0}_\alpha^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle t_{A_{13},B_7}$

$+\frac{-1}{4}\langle 0^A 0^A|\hat{g}|1^A 0^B\rangle\langle A_{13}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle t_{A_{13},B_7}$

$+\frac{1}{4}\langle 0^A 0^A|\hat{g}|1^A 0^B\rangle\langle A_{13}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle t_{A_{13},B_7}$

$+\frac{1}{4}\langle 0^A 1^A|\hat{g}|0^A 0^B\rangle\langle A_{13}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle t_{A_{13},B_7}$

$+\frac{-1}{2}\langle 1^A 0^B|\hat{g}|0^B 0^B\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\alpha^+\hat{0}_\beta^-\hat{0}_\alpha^-|B_1\rangle t_{A_{13},B_7}$

$$+\tfrac{-1}{2}\langle 1^A 0^B|\hat{g}|1^B 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|B_1\rangle t_{A_{13},B_7}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{13},B_7}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{13},B_7}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 0^B|\hat{g}|0^I 0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{13},B_7}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 0^B|\hat{g}|1^I 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{13},B_7}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{13},B_7}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{13},B_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_{10})\rangle =$$

$$+\tfrac{1}{2}\langle 1^A|\hat{h}|1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle t_{A_{11},B_{10}}$$

$$+\tfrac{-1}{4}\langle 0^A 1^A|\hat{g}|0^A 1^B\rangle\langle A_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle t_{A_{11},B_{10}}$$

$$+\tfrac{-1}{4}\langle 0^A 0^A|\hat{g}|1^A 1^B\rangle\langle A_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle t_{A_{11},B_{10}}$$

$$+\tfrac{1}{2}\langle 0^A 0^A|\hat{g}|1^A 1^B\rangle\langle A_{11}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle t_{A_{11},B_{10}}$$

$$+\tfrac{1}{4}\langle 0^A 0^A|\hat{g}|1^A 1^B\rangle\langle A_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle t_{A_{11},B_{10}}$$

$$+\tfrac{1}{4}\langle 0^A 1^A|\hat{g}|0^A 1^B\rangle\langle A_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle t_{A_{11},B_{10}}$$

$$+\tfrac{1}{2}\langle 0^A 1^A|\hat{g}|0^A 1^B\rangle\langle A_{11}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle t_{A_{11},B_{10}}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|0^B 1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|B_1\rangle t_{A_{11},B_{10}}$$

$$+\tfrac{1}{2}\langle 1^A 1^B|\hat{g}|1^B 1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|B_1\rangle t_{A_{11},B_{10}}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{11},B_{10}}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{11},B_{10}}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{11},B_{10}}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{11},B_{10}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 1^B|\hat{g}|0^I 0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{11},B_{10}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 1^B|\hat{g}|1^I 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{11},B_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_8)\rangle =$$

$$+\tfrac{1}{2}\langle 1^A|\hat{h}|1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle t_{A_{13},B_8}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|1^A1^B\rangle\langle A_{13}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle t_{A_{13},B_8}$$

$$+\tfrac{-1}{4}\langle 0^A1^A|\hat{g}|0^A1^B\rangle\langle A_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle t_{A_{13},B_8}$$

$$+\tfrac{-1}{2}\langle 0^A1^A|\hat{g}|0^A1^B\rangle\langle A_{13}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle t_{A_{13},B_8}$$

$$+\tfrac{-1}{4}\langle 0^A0^A|\hat{g}|1^A1^B\rangle\langle A_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle t_{A_{13},B_8}$$

$$+\tfrac{1}{4}\langle 0^A0^A|\hat{g}|1^A1^B\rangle\langle A_{13}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle t_{A_{13},B_8}$$

$$+\tfrac{1}{4}\langle 0^A1^A|\hat{g}|0^A1^B\rangle\langle A_{13}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle t_{A_{13},B_8}$$

$$+\tfrac{-1}{2}\langle 1^A0^B|\hat{g}|0^B1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|B_1\rangle t_{A_{13},B_8}$$

$$+\tfrac{-1}{2}\langle 1^A1^B|\hat{g}|1^B1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|B_1\rangle t_{A_{13},B_8}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^B0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{13},B_8}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^B1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{13},B_8}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A1^B|\hat{g}|0^I0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{13},B_8}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^I1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{13},B_8}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|1^B0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{13},B_8}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|1^B1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{13},B_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_{12})\rangle =$$

$$+\tfrac{-1}{2}\langle 0^A|\hat{h}|0^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle t_{A_9,B_{12}}$$

$$+\tfrac{-1}{2}\langle 0^A0^A|\hat{g}|0^A0^B\rangle\langle A_9|\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle t_{A_9,B_{12}}$$

$$+\tfrac{-1}{2}\langle 0^A1^A|\hat{g}|1^A0^B\rangle\langle A_9|\hat{0}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle t_{A_9,B_{12}}$$

$$+\tfrac{-1}{4}\langle 0^A1^B|\hat{g}|0^B1^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_9,B_{12}}$$

$$+\tfrac{-1}{2}\langle 0^A1^B|\hat{g}|0^B1^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_9,B_{12}}$$

$$+\tfrac{-1}{4}\langle 0^A0^B|\hat{g}|1^B1^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_9,B_{12}}$$

$$+\tfrac{-1}{2}\langle 0^A0^B|\hat{g}|1^B1^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_9,B_{12}}$$

$$+\tfrac{1}{4}\langle 0^A0^B|\hat{g}|1^B1^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_9,B_{12}}$$

$$+\tfrac{1}{4}\langle 0^A1^B|\hat{g}|0^B1^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_9,B_{12}}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^B0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_9,B_{12}}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^B0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_9,B_{12}}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A1^I|\hat{g}|0^B1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_9,B_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_9,B_{12}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_9,B_{12}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_9,B_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_{14})\rangle =$$

$$+\frac{-1}{2}\langle 0^A|\hat{h}|0^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle t_{A_7,B_{14}}$$

$$+\frac{1}{2}\langle 0^A 0^A|\hat{g}|0^A 0^B\rangle\langle A_7|\hat{0}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle t_{A_7,B_{14}}$$

$$+\frac{1}{2}\langle 0^A 1^A|\hat{g}|1^A 0^B\rangle\langle A_7|\hat{0}^+_\alpha\hat{1}^-_\beta\hat{1}^-_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle t_{A_7,B_{14}}$$

$$+\frac{-1}{4}\langle 0^A 1^B|\hat{g}|0^B 1^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_7,B_{14}}$$

$$+\frac{-1}{4}\langle 0^A 0^B|\hat{g}|1^B 1^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_7,B_{14}}$$

$$+\frac{1}{4}\langle 0^A 0^B|\hat{g}|1^B 1^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_7,B_{14}}$$

$$+\frac{1}{4}\langle 0^A 1^B|\hat{g}|0^B 1^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{1}^+_\beta\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_7,B_{14}}$$

$$+\frac{1}{2}\langle 0^A 1^B|\hat{g}|0^B 1^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\alpha|B_1\rangle t_{A_7,B_{14}}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^B 1^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{1}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\alpha|B_1\rangle t_{A_7,B_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_7,B_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_7,B_{14}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_7,B_{14}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_7,B_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_7,B_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_7,B_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_{12})\rangle =$$

$$+\frac{-1}{2}\langle 1^A|\hat{h}|0^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle t_{A_{10},B_{12}}$$

$$+\frac{-1}{2}\langle 0^A 0^A|\hat{g}|1^A 0^B\rangle\langle A_{10}|\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle t_{A_{10},B_{12}}$$

$$+\frac{-1}{2}\langle 1^A 1^A|\hat{g}|1^A 0^B\rangle\langle A_{10}|\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle t_{A_{10},B_{12}}$$

$$+\frac{-1}{4}\langle 1^A 1^B|\hat{g}|0^B 1^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_{10},B_{12}}$$

$$+\frac{-1}{2}\langle 1^A 1^B|\hat{g}|0^B 1^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_{10},B_{12}}$$

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$$+\tfrac{-1}{4}\langle 1^A 0^B|\hat{g}|1^B 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_{10},B_{12}}$$

$$+\tfrac{-1}{2}\langle 1^A 0^B|\hat{g}|1^B 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_{10},B_{12}}$$

$$+\tfrac{1}{4}\langle 1^A 0^B|\hat{g}|1^B 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_{10},B_{12}}$$

$$+\tfrac{1}{4}\langle 1^A 1^B|\hat{g}|0^B 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_{10},B_{12}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{10},B_{12}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{10},B_{12}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{10},B_{12}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{10},B_{12}}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A 0^B|\hat{g}|0^I 0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{10},B_{12}}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A 0^B|\hat{g}|1^I 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{10},B_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_{14})\rangle =$$

$$+\tfrac{-1}{2}\langle 1^A|\hat{h}|0^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle t_{A_8,B_{14}}$$

$$+\tfrac{1}{2}\langle 0^A 0^A|\hat{g}|1^A 0^B\rangle\langle A_8|\hat{1}_\alpha^+\hat{0}_\beta^-\hat{0}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle t_{A_8,B_{14}}$$

$$+\tfrac{1}{2}\langle 1^A 1^A|\hat{g}|1^A 0^B\rangle\langle A_8|\hat{1}_\alpha^+\hat{1}_\beta^-\hat{1}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle t_{A_8,B_{14}}$$

$$+\tfrac{-1}{4}\langle 1^A 1^B|\hat{g}|0^B 1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_8,B_{14}}$$

$$+\tfrac{-1}{4}\langle 1^A 0^B|\hat{g}|1^B 1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_8,B_{14}}$$

$$+\tfrac{1}{4}\langle 1^A 0^B|\hat{g}|1^B 1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_8,B_{14}}$$

$$+\tfrac{1}{4}\langle 1^A 1^B|\hat{g}|0^B 1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_8,B_{14}}$$

$$+\tfrac{1}{2}\langle 1^A 1^B|\hat{g}|0^B 1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{1}_\alpha^-|B_1\rangle t_{A_8,B_{14}}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^B 1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\alpha^-|B_1\rangle t_{A_8,B_{14}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_8,B_{14}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_8,B_{14}}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A 0^B|\hat{g}|0^I 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_8,B_{14}}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A 0^B|\hat{g}|1^I 1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_8,B_{14}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_8,B_{14}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_8,B_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{11})\rangle =$$

$$+ \tfrac{-1}{2}\langle 0^A|\hat{h}|1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle t_{A_9,B_{11}}$$

$$+ \tfrac{-1}{2}\langle 0^A 0^A|\hat{g}|0^A 1^B\rangle\langle A_9|\hat{0}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle t_{A_9,B_{11}}$$

$$+ \tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^A 1^B\rangle\langle A_9|\hat{0}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle t_{A_9,B_{11}}$$

$$+ \tfrac{-1}{2}\langle 0^A 0^B|\hat{g}|0^B 1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_9,B_{11}}$$

$$+ \tfrac{-1}{4}\langle 0^A 0^B|\hat{g}|0^B 1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_9,B_{11}}$$

$$+ \tfrac{-1}{4}\langle 0^A 0^B|\hat{g}|1^B 0^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_9,B_{11}}$$

$$+ \tfrac{-1}{2}\langle 0^A 0^B|\hat{g}|1^B 0^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_9,B_{11}}$$

$$+ \tfrac{1}{4}\langle 0^A 0^B|\hat{g}|1^B 0^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{0}_\alpha^+\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_9,B_{11}}$$

$$+ \tfrac{1}{4}\langle 0^A 0^B|\hat{g}|0^B 1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_9,B_{11}}$$

$$+ \tfrac{-1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_9,B_{11}}$$

$$+ \tfrac{-1}{2}\sum_I\langle 0^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_9,B_{11}}$$

$$+ \tfrac{-1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_9,B_{11}}$$

$$+ \tfrac{-1}{2}\sum_I\langle 0^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_9,B_{11}}$$

$$+ \tfrac{1}{2}\sum_I\langle 0^A 1^B|\hat{g}|0^I 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_9,B_{11}}$$

$$+ \tfrac{1}{2}\sum_I\langle 0^A 1^B|\hat{g}|1^I 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_9,B_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{13})\rangle =$$

$$+ \tfrac{-1}{2}\langle 0^A|\hat{h}|1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle t_{A_7,B_{13}}$$

$$+ \tfrac{1}{2}\langle 0^A 0^A|\hat{g}|0^A 1^B\rangle\langle A_7|\hat{0}_\alpha^+\hat{0}_\beta^-\hat{0}_\alpha^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle t_{A_7,B_{13}}$$

$$+ \tfrac{1}{2}\langle 0^A 1^A|\hat{g}|1^A 1^B\rangle\langle A_7|\hat{0}_\alpha^+\hat{1}_\beta^-\hat{1}_\alpha^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle t_{A_7,B_{13}}$$

$$+ \tfrac{-1}{4}\langle 0^A 0^B|\hat{g}|0^B 1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_7,B_{13}}$$

$$+ \tfrac{-1}{4}\langle 0^A 0^B|\hat{g}|1^B 0^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_7,B_{13}}$$

$$+ \tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^B 1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{1}_\alpha^-|B_1\rangle t_{A_7,B_{13}}$$

$$+ \tfrac{1}{4}\langle 0^A 0^B|\hat{g}|1^B 0^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_7,B_{13}}$$

$$+ \tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^B 0^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{0}_\alpha^-|B_1\rangle t_{A_7,B_{13}}$$

$$+ \tfrac{1}{4}\langle 0^A 0^B|\hat{g}|0^B 1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_7,B_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_7,B_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_7,B_{13}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_7,B_{13}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_7,B_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_7,B_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_7,B_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_{11})\rangle =$$

$$+\tfrac{-1}{2}\langle 1^A|\hat{h}|1^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle t_{A_{10},B_{11}}$$

$$+\tfrac{-1}{2}\langle 0^A 0^A|\hat{g}|1^A 1^B\rangle\langle A_{10}|\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle t_{A_{10},B_{11}}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|1^A 1^B\rangle\langle A_{10}|\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle t_{A_{10},B_{11}}$$

$$+\tfrac{-1}{2}\langle 1^A 0^B|\hat{g}|0^B 1^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_{10},B_{11}}$$

$$+\tfrac{-1}{4}\langle 1^A 0^B|\hat{g}|0^B 1^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_{10},B_{11}}$$

$$+\tfrac{-1}{4}\langle 1^A 0^B|\hat{g}|1^B 0^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_{10},B_{11}}$$

$$+\tfrac{-1}{2}\langle 1^A 0^B|\hat{g}|1^B 0^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_{10},B_{11}}$$

$$+\tfrac{1}{4}\langle 1^A 0^B|\hat{g}|1^B 0^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_{10},B_{11}}$$

$$+\tfrac{1}{4}\langle 1^A 0^B|\hat{g}|0^B 1^B\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_{10},B_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{10},B_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{10},B_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{10},B_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{10},B_{11}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^I 0^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{10},B_{11}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^I 1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{10},B_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_{13})\rangle =$$

$$+\tfrac{-1}{2}\langle 1^A|\hat{h}|1^B\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle t_{A_8,B_{13}}$$

$$+\tfrac{1}{2}\langle 0^A 0^A|\hat{g}|1^A 1^B\rangle\langle A_8|\hat{1}^+_\alpha\hat{0}^-_\beta\hat{0}^-_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle t_{A_8,B_{13}}$$

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$$+\tfrac{1}{2}\langle 1^A 1^A|\hat{g}|1^A 1^B\rangle\langle A_8|\hat{1}^+_\alpha \hat{1}^-_\beta \hat{1}^-_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle t_{A_8,B_{13}}$$

$$+\tfrac{-1}{4}\langle 1^A 0^B|\hat{g}|0^B 1^B\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{0}^+_\beta \hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_8,B_{13}}$$

$$+\tfrac{-1}{4}\langle 1^A 0^B|\hat{g}|1^B 0^B\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta \hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_8,B_{13}}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|0^B 1^B\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{0}^+_\alpha \hat{0}^+_\beta \hat{1}^-_\alpha|B_1\rangle t_{A_8,B_{13}}$$

$$+\tfrac{1}{4}\langle 1^A 0^B|\hat{g}|1^B 0^B\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{0}^+_\beta \hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_8,B_{13}}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^B 0^B\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{0}^+_\alpha \hat{1}^+_\beta \hat{0}^-_\alpha|B_1\rangle t_{A_8,B_{13}}$$

$$+\tfrac{1}{4}\langle 1^A 0^B|\hat{g}|0^B 1^B\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta \hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_8,B_{13}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_8,B_{13}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_8,B_{13}}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A 1^B|\hat{g}|0^I 0^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_0|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle t_{A_8,B_{13}}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A 1^B|\hat{g}|1^I 1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_0|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle t_{A_8,B_{13}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle t_{A_8,B_{13}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle t_{A_8,B_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{15},B_6)\rangle =$$

$$+\tfrac{1}{2}\langle 0^A 0^A|\hat{g}|0^B 0^B\rangle\langle A_{15}|\hat{0}^+_\alpha \hat{0}^+_\beta|A_1\rangle\langle B_6|\hat{0}^-_\beta \hat{0}^-_\alpha|B_1\rangle t_{A_{15},B_6}$$

$$+\tfrac{1}{2}\langle 0^A 0^A|\hat{g}|1^B 1^B\rangle\langle A_{15}|\hat{0}^+_\alpha \hat{0}^+_\beta|A_1\rangle\langle B_6|\hat{1}^-_\beta \hat{1}^-_\alpha|B_1\rangle t_{A_{15},B_6}$$

$$+\tfrac{1}{2}\langle 1^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_{15}|\hat{1}^+_\alpha \hat{1}^+_\beta|A_1\rangle\langle B_6|\hat{0}^-_\beta \hat{0}^-_\alpha|B_1\rangle t_{A_{15},B_6}$$

$$+\tfrac{1}{2}\langle 1^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_{15}|\hat{1}^+_\alpha \hat{1}^+_\beta|A_1\rangle\langle B_6|\hat{1}^-_\beta \hat{1}^-_\alpha|B_1\rangle t_{A_{15},B_6}$$

$$\langle (A_1,B_1)|\hat{H}|(B_2,)\rangle =$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{B_2}$$

$+\frac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{B_2}$

$+\frac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{B_2}$

$+\frac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{B_2}$

$+\frac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{B_2}$

$+\frac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_2}$

$+\frac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_2}$

$+\frac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{B_2}$

$+\frac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{B_2}$

$+\frac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{B_2}$

$+\frac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_2}$

$+\frac{-1}{2}\langle 1^A1^A|\hat{g}|0^B1^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{B_2}$

$+\frac{-1}{2}\langle 1^A1^A|\hat{g}|0^B1^B\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{B_2}$

$+\frac{-1}{2}\langle 1^A1^A|\hat{g}|0^B1^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{B_2}$

$+\frac{-1}{2}\langle 1^A1^A|\hat{g}|0^B1^B\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_2}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{B_2}$

$+\frac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{B_2}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{B_2}$

$+\frac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{B_2}$

$\langle (A_1, B_1)|\hat{H}|(B_3,)\rangle =$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{B_3}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{B_3}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{B_3}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{B_3}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_3}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_3}$

$+\frac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{B_3}$

$+\frac{1}{2}\langle 1^A0^B|\hat{g}|1^A1^B\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{B_3}$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{B_3}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{B_3}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_3}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A 0^A|\hat{g}|0^B 1^B\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A 0^A|\hat{g}|0^B 1^B\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A 0^A|\hat{g}|0^B 1^B\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A 0^A|\hat{g}|0^B 1^B\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_3}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{B_3}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{B_3}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{B_3}$$

$$+\tfrac{-1}{2}\langle 1^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{B_3}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|0^A 1^B\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{B_3}$$

$$+\tfrac{1}{2}\langle 1^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{B_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_2,)\rangle =$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_3,)\rangle =$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_3}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_3}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_3}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_3}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_3}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_3}$$

$$+\tfrac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_3}$$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 0^B\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_3}$

$+\frac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_3}$

$+\frac{1}{2}\langle 0^A 1^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_3}$

$\langle(A_1,B_1)|\hat{H}|(A_2,B_2)\rangle =$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_2,B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_2,B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_2,B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_2,B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_2,B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_2,B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_2,B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_2,B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_2,B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle t_{A_2,B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_2,B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle t_{A_2,B_2}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle t_{A_2,B_2}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle t_{A_2,B_2}$

$$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2,B_2}$$

$$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2,B_2}$$

$$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2,B_2}$$

$$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2,B_2}$$

$$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2,B_2}$$

$$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2,B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2,B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2,B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2,B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2,B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2}t_{B_2}$$

$$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2}t_{B_2}$$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2}t_{B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_2}t_{B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_2}t_{B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_2}t_{B_2}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_2}t_{B_2}$

$\langle(A_1,B_1)|\hat{H}|(A_2,B_3)\rangle =$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_2,B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_2,B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_2,B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_2,B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2,B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2,B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_2,B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_2,B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_2,B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_2,B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2,B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2,B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_2,B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_2,B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_2,B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2,B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_2,B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_2,B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_2,B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_2,B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_2,B_3}$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2,B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2,B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2,B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2} t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_2} t_{B_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_3, B_2)\rangle =$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_3,B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle t_{A_3} t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_3} t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle t_{A_3} t_{B_2}$$

$$+\tfrac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle t_{A_3} t_{B_2}$$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|1^B0^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|1^B0^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|0^B1^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|0^B1^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|0^B1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|0^B1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|1^B0^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{-1}{2}\langle 0^A1^A|\hat{g}|1^B0^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3}t_{B_2}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3}t_{B_2}$

$\langle(A_1,B_1)|\hat{H}|(A_3,B_3)\rangle =$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3,B_3}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3,B_3}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3,B_3}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3,B_3}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3,B_3}$

$+\frac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3,B_3}$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{-1}{2}\langle 0^A1^A|\hat{g}|1^B0^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{-1}{2}\langle 0^A1^A|\hat{g}|1^B0^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{-1}{2}\langle 0^A1^A|\hat{g}|0^B1^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{-1}{2}\langle 0^A1^A|\hat{g}|0^B1^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{-1}{2}\langle 0^A1^A|\hat{g}|0^B1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{-1}{2}\langle 0^A1^A|\hat{g}|0^B1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{-1}{2}\langle 0^A1^A|\hat{g}|1^B0^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{-1}{2}\langle 0^A1^A|\hat{g}|1^B0^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3,B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3}t_{B_3}$$

$$+\tfrac{1}{2}\langle 0^A0^B|\hat{g}|1^A1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3}t_{B_3}$$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3}t_{B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3}t_{B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3}t_{B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3}t_{B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3}t_{B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3}t_{B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle t_{A_3}t_{B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3}t_{B_3}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle t_{A_3}t_{B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3}t_{B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle t_{A_3}t_{B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3}t_{B_3}$

$+\frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle t_{A_3}t_{B_3}$

$\langle(A_1, B_1)|\hat{H}|(A_4, B_5)\rangle =$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_4|\hat{0}^+_\alpha\hat{1}^-_\beta|A_1\rangle\langle B_5|\hat{0}^+_\beta\hat{1}^-_\alpha|B_1\rangle t_{A_4, B_5}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_4|\hat{0}^+_\alpha\hat{1}^-_\beta|A_1\rangle\langle B_5|\hat{1}^+_\beta\hat{0}^-_\alpha|B_1\rangle t_{A_4, B_5}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_4|\hat{1}^+_\alpha\hat{0}^-_\beta|A_1\rangle\langle B_5|\hat{0}^+_\beta\hat{1}^-_\alpha|B_1\rangle t_{A_4, B_5}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_4|\hat{1}^+_\alpha\hat{0}^-_\beta|A_1\rangle\langle B_5|\hat{1}^+_\beta\hat{0}^-_\alpha|B_1\rangle t_{A_4, B_5}$

$\langle(A_1, B_1)|\hat{H}|(A_5, B_4)\rangle =$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_5|\hat{0}^+_\beta\hat{1}^-_\alpha|A_1\rangle\langle B_4|\hat{0}^+_\alpha\hat{1}^-_\beta|B_1\rangle t_{A_5, B_4}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_5|\hat{1}^+_\beta\hat{0}^-_\alpha|A_1\rangle\langle B_4|\hat{0}^+_\alpha\hat{1}^-_\beta|B_1\rangle t_{A_5, B_4}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_5|\hat{0}^+_\beta\hat{1}^-_\alpha|A_1\rangle\langle B_4|\hat{1}^+_\alpha\hat{0}^-_\beta|B_1\rangle t_{A_5, B_4}$

$+\frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_5|\hat{1}^+_\beta\hat{0}^-_\alpha|A_1\rangle\langle B_4|\hat{1}^+_\alpha\hat{0}^-_\beta|B_1\rangle t_{A_5, B_4}$

$$\langle (A_1, B_1)|\hat{H}|(A_6, B_{15})\rangle =$$

$$+\tfrac{1}{2}\langle 0^A 0^A|\hat{g}|0^B 0^B\rangle\langle A_6|\hat{0}_{\bar\beta}^-\hat{0}_{\bar\alpha}^-|A_1\rangle\langle B_{15}|\hat{0}_{\alpha}^+\hat{0}_{\beta}^+|B_1\rangle t_{A_6,B_{15}}$$

$$+\tfrac{1}{2}\langle 1^A 1^A|\hat{g}|0^B 0^B\rangle\langle A_6|\hat{1}_{\bar\beta}^-\hat{1}_{\bar\alpha}^-|A_1\rangle\langle B_{15}|\hat{0}_{\alpha}^+\hat{0}_{\beta}^+|B_1\rangle t_{A_6,B_{15}}$$

$$+\tfrac{1}{2}\langle 0^A 0^A|\hat{g}|1^B 1^B\rangle\langle A_6|\hat{0}_{\bar\beta}^-\hat{0}_{\bar\alpha}^-|A_1\rangle\langle B_{15}|\hat{1}_{\alpha}^+\hat{1}_{\beta}^+|B_1\rangle t_{A_6,B_{15}}$$

$$+\tfrac{1}{2}\langle 1^A 1^A|\hat{g}|1^B 1^B\rangle\langle A_6|\hat{1}_{\bar\beta}^-\hat{1}_{\bar\alpha}^-|A_1\rangle\langle B_{15}|\hat{1}_{\alpha}^+\hat{1}_{\beta}^+|B_1\rangle t_{A_6,B_{15}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_1, J_{12}, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{12},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_1,J_{14},K_7)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{14},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{14},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{14},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{14},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{14},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{14},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{14},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{14},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_1,J_{12},K_{10})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|0^J1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|0^J1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|0^J1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|0^J1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|0^J1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|0^J1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|0^J1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|0^J1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_1, J_{14}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{0}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{1}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_2, J_{12}, K_9)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{12},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_{12},K_9)\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{12},K_9}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^K 0^J \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1, I_3} t_{J_{12}, K_9}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^J 0^K \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1, I_3} t_{J_{12}, K_9}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1, I_3} t_{J_{12}, K_9}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1, I_3} t_{J_{12}, K_9}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_{12}, K_9}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_{12}, K_9}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^K 0^J \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_{12}, K_9}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^J 0^K \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_{12}, K_9}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_{12}, K_9}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_{12}, K_9}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_{12}, K_9}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_{12}, K_9}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^K 0^J \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_{12}, K_9}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^J 0^K \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_{12}, K_9}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_{12}, K_9}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_{12}, K_9}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_3} t_{J_{12}, K_9}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_3} t_{J_{12}, K_9}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^K 0^J \rangle \langle I_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_3} t_{J_{12}, K_9}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^J 0^K \rangle \langle I_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_3} t_{J_{12}, K_9}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_3} t_{J_{12}, K_9}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1} t_{I_3} t_{J_{12}, K_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_2, J_{14}, K_7) \rangle =$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_1, I_2} t_{J_{14}, K_7}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_1, I_2} t_{J_{14}, K_7}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_1, I_2} t_{J_{14}, K_7}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 0^K \rangle \langle I_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_1, I_2} t_{J_{14}, K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{14},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_{14},K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{14},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_2,J_{12},K_{10})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{12},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_{12},K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{12},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_2,J_{14},K_8)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|1^K0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|0^J1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|1^K0^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|0^J1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{14},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_{14},K_8)\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|1^K0^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|0^J1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|1^K0^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|0^J1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{14},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_1,J_{11},K_9)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{11},K_9}$$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{11},K_9}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{11},K_9}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{11},K_9}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{11},K_9}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{11},K_9}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{11},K_9}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{11},K_9}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{11},K_9}$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_1,J_{13},K_7)\rangle =$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{13},K_7}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{13},K_7}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{13},K_7}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{13},K_7}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{13},K_7}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{13},K_7}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{13},K_7}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{13},K_7}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{13},K_7}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{13},K_7}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{13},K_7}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{13},K_7}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{13},K_7}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{13},K_7}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{13},K_7}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{13},K_7}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{13},K_7}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{13},K_7}$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^I|\hat{g}|1^J 0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{13},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_1,J_{11},K_{10})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{11},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^I|\hat{g}|1^J 1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{11},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^I|\hat{g}|1^J 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{11},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^I|\hat{g}|1^J 1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{11},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^I|\hat{g}|1^J 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{11},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^I|\hat{g}|1^J 1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{11},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^I|\hat{g}|1^J 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{11},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_1,J_{13},K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{13},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_2,J_{11},K_9)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{11},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_3, J_{11}, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_1,I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_1,I_3} t_{J_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|0^K 1^J\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_1,I_3} t_{J_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_1,I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_1,I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_1,I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1} t_{I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1} t_{I_3} t_{J_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|0^K 1^J\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1} t_{I_3} t_{J_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1} t_{I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1} t_{I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1} t_{I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_1,I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_1,I_3} t_{J_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|0^K 1^J\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_1,I_3} t_{J_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_1,I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_1,I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_1,I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_1} t_{I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_1} t_{I_3} t_{J_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|0^K 1^J\rangle\langle I_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_1} t_{I_3} t_{J_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_1} t_{I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_1} t_{I_3} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_1} t_{I_3} t_{J_{11},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_2, J_{13}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^K 1^J\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^K 1^J\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^K 1^J\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^K 1^J\rangle\langle I_2|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_2|\hat{1}^+_\beta \hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_3, J_{13}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}^+_\beta \hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{13},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_2,J_{11},K_{10})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{11},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{11},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_{11},K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{11},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_2,J_{13},K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_{13},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_{13},K_8)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{13},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_1,K_9)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{12},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_1,K_7)\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{14},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{14},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{14},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{14},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{14},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_1,K_{10})\rangle=$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{12},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_1,K_8)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^K 1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^J 1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^J 1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^K 0^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^K 1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^K 0^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^K 1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{14},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_2,K_9)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^J 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^J 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^J 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^J 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^J 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^J 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{12},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^J 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{12},K_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_3,K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{12},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_2,K_7)\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{14},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_3,K_7)\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_2, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_3, K_{10})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{12},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{12},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_2,K_8)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{14},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_3,K_8)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{14},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_1,K_9)\rangle=$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{11},K_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_1,K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{13},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_1,K_{10})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{11},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{11},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{11},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 0^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{11},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_1,K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 0^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 0^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 0^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 0^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{13},K_8}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 0^J 1^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_{13}, K_8}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 1^J 1^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_1 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_{13}, K_8}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 0^J \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_{13}, K_8}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 1^K 1^J \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_1 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_{13}, K_8}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 0^J \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_{13}, K_8}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 1^K 1^J \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{B_1} t_{A_1, J_1} t_{I_{13}, K_8}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 0^J 1^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{A_1} t_{B_1} t_{J_1} t_{I_{13}, K_8}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 1^J 1^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_1 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{A_1} t_{B_1} t_{J_1} t_{I_{13}, K_8}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 0^J \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{A_1} t_{B_1} t_{J_1} t_{I_{13}, K_8}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 1^K 1^J \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_1 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{A_1} t_{B_1} t_{J_1} t_{I_{13}, K_8}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 0^J \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{A_1} t_{B_1} t_{J_1} t_{I_{13}, K_8}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 1^K 1^J \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{A_1} t_{B_1} t_{J_1} t_{I_{13}, K_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{11}, J_2, K_9) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^J 0^K \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{A_1} t_{B_1, J_2} t_{I_{11}, K_9}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 0^J 0^K \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{A_1} t_{B_1, J_2} t_{I_{11}, K_9}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 0^K 1^J \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{A_1} t_{B_1, J_2} t_{I_{11}, K_9}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 0^K 1^J \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_2 | \hat{0}^+_\beta \hat{1}^-_\beta | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{A_1} t_{B_1, J_2} t_{I_{11}, K_9}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 0^K 1^J \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{A_1} t_{B_1, J_2} t_{I_{11}, K_9}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 0^K 1^J \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_2 | \hat{1}^+_\beta \hat{0}^-_\beta | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{A_1} t_{B_1, J_2} t_{I_{11}, K_9}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^J 0^K \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{A_1, B_1} t_{J_2} t_{I_{11}, K_9}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 0^J 0^K \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{A_1, B_1} t_{J_2} t_{I_{11}, K_9}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 0^K 1^J \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{A_1, B_1} t_{J_2} t_{I_{11}, K_9}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 0^K 1^J \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_2 | \hat{0}^+_\beta \hat{1}^-_\beta | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{A_1, B_1} t_{J_2} t_{I_{11}, K_9}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 0^K 1^J \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{A_1, B_1} t_{J_2} t_{I_{11}, K_9}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 0^K 1^J \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_2 | \hat{1}^+_\beta \hat{0}^-_\beta | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{A_1, B_1} t_{J_2} t_{I_{11}, K_9}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^J 0^K \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{B_1} t_{A_1, J_2} t_{I_{11}, K_9}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 0^J 0^K \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{B_1} t_{A_1, J_2} t_{I_{11}, K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_2|\hat 0_\alpha^+\hat 1_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_2|\hat 0_\beta^+\hat 1_\beta^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_2|\hat 1_\alpha^+\hat 0_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_2|\hat 1_\beta^+\hat 0_\beta^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|1^J 0^K\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_2|\hat 0_\alpha^+\hat 1_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat g|0^J 0^K\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_2|\hat 1_\alpha^+\hat 0_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_2|\hat 0_\alpha^+\hat 1_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_2|\hat 0_\beta^+\hat 1_\beta^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_2|\hat 1_\alpha^+\hat 0_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_2|\hat 1_\beta^+\hat 0_\beta^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{11},K_9}$$

$$\langle (A_1,B_1)|\hat H|(A_1,B_1,I_{11},J_3,K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|1^J 0^K\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 0_\alpha^+\hat 1_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat g|0^J 0^K\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 1_\alpha^+\hat 0_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 0_\alpha^+\hat 1_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 0_\beta^+\hat 1_\beta^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 1_\alpha^+\hat 0_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 1_\beta^+\hat 0_\beta^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|1^J 0^K\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 0_\alpha^+\hat 1_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat g|0^J 0^K\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 1_\alpha^+\hat 0_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 0_\alpha^+\hat 1_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 0_\beta^+\hat 1_\beta^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 1_\alpha^+\hat 0_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 1_\beta^+\hat 0_\beta^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|1^J 0^K\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 0_\alpha^+\hat 1_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat g|0^J 0^K\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 1_\alpha^+\hat 0_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 0_\alpha^+\hat 1_\alpha^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat g|0^K 1^J\rangle\langle I_{11}|\hat 1_\alpha^+|I_0\rangle\langle J_3|\hat 0_\beta^+\hat 1_\beta^-|J_0\rangle\langle K_9|\hat 0_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{11},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_2,K_7)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|1^J0^K\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_2|\hat 0^+_\beta\hat 1^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat g|0^J0^K\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_2|\hat 1^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_2|\hat 0^+_\beta\hat 1^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_2|\hat 1^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_2|\hat 0^+_\alpha\hat 1^-_\alpha|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_2|\hat 1^+_\alpha\hat 0^-_\alpha|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{13},K_7}$$

$$\langle (A_1,B_1)|\hat H|(A_1,B_1,I_{13},J_3,K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|1^J0^K\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 0^+_\beta\hat 1^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat g|0^J0^K\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 1^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 0^+_\beta\hat 1^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 1^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 0^+_\alpha\hat 1^-_\alpha|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 1^+_\alpha\hat 0^-_\alpha|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|1^J0^K\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 0^+_\beta\hat 1^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat g|0^J0^K\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 1^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 0^+_\beta\hat 1^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 1^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 0^+_\alpha\hat 1^-_\alpha|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 1^+_\alpha\hat 0^-_\alpha|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|1^J0^K\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 0^+_\beta\hat 1^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat g|0^J0^K\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 1^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 0^+_\beta\hat 1^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 1^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 0^+_\alpha\hat 1^-_\alpha|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^J\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 1^+_\alpha\hat 0^-_\alpha|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|1^J0^K\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 0^+_\beta\hat 1^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat g|0^J0^K\rangle\langle I_{13}|\hat 1^+_\beta|I_0\rangle\langle J_3|\hat 1^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_7|\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{13},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_2,K_{10})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{11},K_{10}}$$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{11},K_{10}}$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_3,K_{10})\rangle =$

$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^J 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{11},K_{10}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{11},K_{10}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^J 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{11},K_{10}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{11},K_{10}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^J 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{11},K_{10}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{11},K_{10}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^J 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{11},K_{10}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{11},K_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{11},K_{10}}$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{13}, J_2, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{13}, J_3, K_8)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^J\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_1, J_9, K_{12})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_9,K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_1,J_7,K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|0^J0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_7,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_1,J_{10},K_{12})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{10},K_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_1,J_8,K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I0^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J0^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_2,J_9,K_{12})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^K 0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^J 0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^K 0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^J 0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^K 0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_9,K_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_9,K_{12})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^J 0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^K 0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^J 0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^K 0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_9,K_{12}}$$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_9,K_{12}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_9,K_{12}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_9,K_{12}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_9,K_{12}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_9,K_{12}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_9,K_{12}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_9,K_{12}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_9,K_{12}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_9,K_{12}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_9,K_{12}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_9,K_{12}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_9,K_{12}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_9,K_{12}}$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_2,J_7,K_{14})\rangle =$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_7,K_{14}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_7,K_{14}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_7,K_{14}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_7,K_{14}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_7,K_{14}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_7,K_{14}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_7,K_{14}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_7,K_{14}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_7,K_{14}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_7,K_{14}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_7,K_{14}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_7,K_{14}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_7,K_{14}}$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_7,K_{14})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_2,J_{10},K_{12})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{10},K_{12}}$$

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$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{B_1} t_{A_1, I_2} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1} t_{I_2} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1} t_{I_2} t_{J_{10}, K_{12}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 1^J 0^K \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1} t_{I_2} t_{J_{10}, K_{12}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^K 1^J \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1} t_{I_2} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1} t_{I_2} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1} t_{I_2} t_{J_{10}, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_3, J_{10}, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1, I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1, I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 1^J 0^K \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1, I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^K 1^J \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1, I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1, I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1, I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 1^J 0^K \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^K 1^J \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 1^J 0^K \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^K 1^J \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^I 0^K \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1} t_{I_3} t_{J_{10}, K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{10},K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{10},K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|0^K 1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{10},K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{10},K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{10},K_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_2,J_8,K_{14})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|0^K 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|0^K 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^I|\hat{g}|0^K 1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_8,K_{14})\rangle=$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^K1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I0^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J0^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^K 1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_1,J_9,K_{11})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_9,K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_9,K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_9,K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_9,K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_9,K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_9,K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_9,K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_9,K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_9,K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_1, J_7, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|0^J 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_1, J_{10}, K_{11})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^I|\hat{g}|1^J1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^I1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_{10},K_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_1,J_8,K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^I1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|1^J 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|1^J 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_1}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|1^J 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|1^J 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_1}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|1^J 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|1^J 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_1}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^I 1^K\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^I|\hat{g}|1^J 1^K\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^I|\hat{g}|1^J 1^K\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_1}t_{J_8,K_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_2,J_9,K_{11})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_9,K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|0^J 1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_9,K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|1^K 0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_9,K_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_9,K_{11})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_9,K_{11}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_9, K_{11}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_9, K_{11}}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^J 1^K \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_9, K_{11}}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 1^K 0^J \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_9, K_{11}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_9, K_{11}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{A_1, B_1} t_{I_3} t_{J_9, K_{11}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_9, K_{11}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_9, K_{11}}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^J 1^K \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_9, K_{11}}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 1^K 0^J \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_9, K_{11}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_9, K_{11}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{B_1} t_{A_1, I_3} t_{J_9, K_{11}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1} t_{I_3} t_{J_9, K_{11}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1} t_{I_3} t_{J_9, K_{11}}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^J 1^K \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1} t_{I_3} t_{J_9, K_{11}}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 1^K 0^J \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1} t_{I_3} t_{J_9, K_{11}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1} t_{I_3} t_{J_9, K_{11}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle t_{A_1} t_{B_1} t_{I_3} t_{J_9, K_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_2, J_7, K_{13}) \rangle =$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle t_{A_1} t_{B_1, I_2} t_{J_7, K_{13}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle t_{A_1} t_{B_1, I_2} t_{J_7, K_{13}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle t_{A_1} t_{B_1, I_2} t_{J_7, K_{13}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle t_{A_1} t_{B_1, I_2} t_{J_7, K_{13}}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 0^J 1^K \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle t_{A_1} t_{B_1, I_2} t_{J_7, K_{13}}$$

$$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^I | \hat{g} | 1^K 0^J \rangle \langle I_2 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle t_{A_1} t_{B_1, I_2} t_{J_7, K_{13}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_2 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle t_{A_1, B_1} t_{I_2} t_{J_7, K_{13}}$$

$$+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^I 1^K \rangle \langle I_2 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle t_{A_1, B_1} t_{I_2} t_{J_7, K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_7,K_{13})\rangle=$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|0^J1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K0^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_2,J_{10},K_{11})\rangle=$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_{10},K_{11}}$$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{10},K_{11}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|1^J1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{10},K_{11}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|1^K1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2,J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2,J_{10},K_{11}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|1^J1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2,J_{10},K_{11}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|1^K1^J\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2,J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2,J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{I_2,J_{10},K_{11}}$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_{10},K_{11})\rangle=$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{10},K_{11}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|1^J1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{10},K_{11}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|1^K1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{10},K_{11}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|1^J1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{10},K_{11}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle0^I1^I|\hat{g}|1^K1^J\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{10},K_{11}}$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|1^J 1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|1^K 1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|1^J 1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|1^K 1^J\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_{10},K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_2,J_8,K_{13})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|1^J 1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|1^K 1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|1^J 1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^I|\hat{g}|1^K 1^J\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{I_2}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_3,J_8,K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^I1^K\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^J1^K\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^I|\hat{g}|1^K1^J\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{I_3}t_{J_8,K_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_9,K_1)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{12},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{12},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{12},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_7,K_1)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{14},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_9,K_2)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{12},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^K 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{12},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{12},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^K 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{12},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{12},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^K 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{12},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{12},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{12},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|1^K 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{12},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{12},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_9,K_3)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|1^K 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|0^K 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|1^K 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|0^K 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|1^K 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|0^K 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|1^K 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat{g}|0^K 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{12},J_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{14}, J_7, K_2) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{0}_{\bar{\beta}}^+ \hat{1}_{\bar{\beta}}^- | K_0 \rangle t_{A_1} t_{B_1, K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{1}_{\bar{\beta}}^+ \hat{0}_{\bar{\beta}}^- | K_0 \rangle t_{A_1} t_{B_1, K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^K 0^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{0}_{\bar{\beta}}^+ \hat{1}_{\bar{\beta}}^- | K_0 \rangle t_{A_1} t_{B_1, K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 0^K 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{1}_{\bar{\beta}}^+ \hat{0}_{\bar{\beta}}^- | K_0 \rangle t_{A_1} t_{B_1, K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | K_0 \rangle t_{A_1} t_{B_1, K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | K_0 \rangle t_{A_1} t_{B_1, K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{0}_{\bar{\beta}}^+ \hat{1}_{\bar{\beta}}^- | K_0 \rangle t_{A_1, B_1} t_{K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{1}_{\bar{\beta}}^+ \hat{0}_{\bar{\beta}}^- | K_0 \rangle t_{A_1, B_1} t_{K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^K 0^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{0}_{\bar{\beta}}^+ \hat{1}_{\bar{\beta}}^- | K_0 \rangle t_{A_1, B_1} t_{K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 0^K 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{1}_{\bar{\beta}}^+ \hat{0}_{\bar{\beta}}^- | K_0 \rangle t_{A_1, B_1} t_{K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | K_0 \rangle t_{A_1, B_1} t_{K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | K_0 \rangle t_{A_1, B_1} t_{K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{0}_{\bar{\beta}}^+ \hat{1}_{\bar{\beta}}^- | K_0 \rangle t_{B_1} t_{A_1, K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{1}_{\bar{\beta}}^+ \hat{0}_{\bar{\beta}}^- | K_0 \rangle t_{B_1} t_{A_1, K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^K 0^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{0}_{\bar{\beta}}^+ \hat{1}_{\bar{\beta}}^- | K_0 \rangle t_{B_1} t_{A_1, K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 0^K 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{1}_{\bar{\beta}}^+ \hat{0}_{\bar{\beta}}^- | K_0 \rangle t_{B_1} t_{A_1, K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | K_0 \rangle t_{B_1} t_{A_1, K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | K_0 \rangle t_{B_1} t_{A_1, K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{0}_{\bar{\beta}}^+ \hat{1}_{\bar{\beta}}^- | K_0 \rangle t_{A_1} t_{B_1} t_{K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{1}_{\bar{\beta}}^+ \hat{0}_{\bar{\beta}}^- | K_0 \rangle t_{A_1} t_{B_1} t_{K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 1^K 0^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{0}_{\bar{\beta}}^+ \hat{1}_{\bar{\beta}}^- | K_0 \rangle t_{A_1} t_{B_1} t_{K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^J | \hat{g} | 0^K 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{1}_{\bar{\beta}}^+ \hat{0}_{\bar{\beta}}^- | K_0 \rangle t_{A_1} t_{B_1} t_{K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | K_0 \rangle t_{A_1} t_{B_1} t_{K_2} t_{I_{14}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_2 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | K_0 \rangle t_{A_1} t_{B_1} t_{K_2} t_{I_{14}, J_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{14}, J_7, K_3) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 0^J 1^K \rangle \langle I_{14} | \hat{0}_{\bar{\beta}}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_3 | \hat{0}_{\bar{\beta}}^+ \hat{1}_{\bar{\beta}}^- | K_0 \rangle t_{A_1} t_{B_1, K_3} t_{I_{14}, J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{14},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{14},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10},K_1)\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{12},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_8,K_1)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^K 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^K 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^K 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^K 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^K 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^K 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{14},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10},K_2)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^K 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^K 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{12},J_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10},K_3)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{12},J_{10}}$$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{12},J_{10}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{12},J_{10}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{12},J_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{12},J_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{12},J_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{12},J_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{12},J_{10}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{12},J_{10}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{12},J_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{12},J_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{12},J_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{12},J_{10}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{12},J_{10}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{12},J_{10}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{12},J_{10}}$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_8,K_2)\rangle =$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{14},J_8}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{14},J_8}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{14},J_8}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{14},J_8}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{14},J_8}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{14},J_8}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{14},J_8}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{14},J_8}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{14},J_8}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{14},J_8}$

$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{14},J_8}$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_8,K_3)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{14},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_1)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{11},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_7,K_1)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{13},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{13},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{13},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{13},J_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{13},J_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{13},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{13},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{13},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_2)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{11},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{11},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{11},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{11},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{11},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^K 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{11},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{11},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_3)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{11},J_9}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{11},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_7,K_2)\rangle=$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{13},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_7,K_3)\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{13},J_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{11}, J_{10}, K_1)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{13}, J_8, K_1)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{13},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{10},K_2)\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{11},J_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{10},K_3)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{11},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{11},J_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_8,K_2)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{13},J_8}$$

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$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^K 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^K 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^K 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^K 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^K 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^K 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{13},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_8,K_3)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^K 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^K 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{13},J_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{13},J_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^K 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{13},J_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{13},J_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^K 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{13},J_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{13},J_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^K 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_1, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^J 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^J 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 0^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^K 1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 0^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^K 1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^J 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|1^J 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 0^J|\hat{g}|0^K 0^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I 1^J|\hat{g}|0^K 1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I0^J|\hat{g}|0^J0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I0^J|\hat{g}|0^J0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_9,K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_1,K_{14})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I0^J|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I0^J|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K0^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_7,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_2,K_{12})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_9,K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_3,K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_9,K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_2,K_{14})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_2|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_2|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_2|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_2|\hat{0}_{\bar{\alpha}}^+\hat{1}_{\bar{\alpha}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_2|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_2|\hat{1}_{\bar{\alpha}}^+\hat{0}_{\bar{\alpha}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_7,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_3,K_{14})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{0}_{\bar{\alpha}}^+\hat{1}_{\bar{\alpha}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{1}_{\bar{\alpha}}^+\hat{0}_{\bar{\alpha}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{0}_{\bar{\alpha}}^+\hat{1}_{\bar{\alpha}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{1}_{\bar{\alpha}}^+\hat{0}_{\bar{\alpha}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{0}_{\bar{\alpha}}^+\hat{1}_{\bar{\alpha}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{1}_{\bar{\alpha}}^+\hat{0}_{\bar{\alpha}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J0^K\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar{\beta}}^-|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle\langle K_{14}|\hat{0}_{\bar{\beta}}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle\langle K_{14}|\hat{0}^+_{\bar\beta}|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{14}|\hat{0}^+_{\bar\beta}|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle\langle K_{14}|\hat{0}^+_{\bar\beta}|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^J\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{14}|\hat{0}^+_{\bar\beta}|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_1,K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J0^K\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J0^K\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J0^K\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J0^K\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{10},K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 0^J\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{10},K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{10},K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_1,K_{14})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^J 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^J 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^K 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^K 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^J 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^J 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^K 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^K 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^J 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^J 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^K 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^K 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^J 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|1^J 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 0^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^K 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^K 1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_2, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|1^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{10},K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_3, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|1^J 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{10},K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_2, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat{g}|0^J 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_3,K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_8,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_1,K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_9,K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_1,K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_1|\hat{1}_{\bar\beta}^+\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_2,K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_9,K_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_3,K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_9,K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_2,K_{13})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^I1^J|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_3,K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K1^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat g|1^K 1^J\rangle\langle I_7|\hat 0^-_\beta|I_0\rangle\langle J_3|\hat 0^+_\alpha\hat 1^-_\alpha|J_0\rangle\langle K_{13}|\hat 1^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat g|1^K 1^J\rangle\langle I_7|\hat 0^-_\beta|I_0\rangle\langle J_3|\hat 1^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_{13}|\hat 1^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat g|1^K 1^J\rangle\langle I_7|\hat 0^-_\beta|I_0\rangle\langle J_3|\hat 1^+_\alpha\hat 0^-_\alpha|J_0\rangle\langle K_{13}|\hat 1^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 1^J|\hat g|0^J 1^K\rangle\langle I_7|\hat 0^-_\beta|I_0\rangle\langle J_3|\hat 0^+_\beta\hat 1^-_\beta|J_0\rangle\langle K_{13}|\hat 1^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat g|1^J 1^K\rangle\langle I_7|\hat 0^-_\beta|I_0\rangle\langle J_3|\hat 1^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_{13}|\hat 1^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat g|1^K 1^J\rangle\langle I_7|\hat 0^-_\beta|I_0\rangle\langle J_3|\hat 0^+_\beta\hat 1^-_\beta|J_0\rangle\langle K_{13}|\hat 1^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat g|1^K 1^J\rangle\langle I_7|\hat 0^-_\beta|I_0\rangle\langle J_3|\hat 0^+_\alpha\hat 1^-_\alpha|J_0\rangle\langle K_{13}|\hat 1^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat g|1^K 1^J\rangle\langle I_7|\hat 0^-_\beta|I_0\rangle\langle J_3|\hat 1^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_{13}|\hat 1^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I 0^J|\hat g|1^K 1^J\rangle\langle I_7|\hat 0^-_\beta|I_0\rangle\langle J_3|\hat 1^+_\alpha\hat 0^-_\alpha|J_0\rangle\langle K_{13}|\hat 1^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_7,K_{13}}$$

$$\langle (A_1,B_1)|\hat H|(A_1,B_1,I_{10},J_1,K_{11})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat g|0^J 1^K\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 0^+_\alpha\hat 0^-_\alpha|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat g|1^J 1^K\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 1^+_\alpha\hat 1^-_\alpha|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat g|1^K 0^J\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 0^+_\alpha\hat 0^-_\alpha|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat g|1^K 1^J\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 1^+_\alpha\hat 1^-_\alpha|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat g|1^K 0^J\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 0^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat g|1^K 1^J\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 1^+_\beta\hat 1^-_\beta|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat g|0^J 1^K\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 0^+_\alpha\hat 0^-_\alpha|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat g|1^J 1^K\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 1^+_\alpha\hat 1^-_\alpha|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat g|1^K 0^J\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 0^+_\alpha\hat 0^-_\alpha|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat g|1^K 1^J\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 1^+_\alpha\hat 1^-_\alpha|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat g|1^K 0^J\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 0^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat g|1^K 1^J\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 1^+_\beta\hat 1^-_\beta|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat g|0^J 1^K\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 0^+_\alpha\hat 0^-_\alpha|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat g|1^J 1^K\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 1^+_\alpha\hat 1^-_\alpha|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat g|1^K 0^J\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 0^+_\alpha\hat 0^-_\alpha|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 1^J|\hat g|1^K 1^J\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 1^+_\alpha\hat 1^-_\alpha|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I 0^J|\hat g|1^K 0^J\rangle\langle I_{10}|\hat 1^-_\alpha|I_0\rangle\langle J_1|\hat 0^+_\beta\hat 0^-_\beta|J_0\rangle\langle K_{11}|\hat 1^+_\alpha|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_{10},K_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_1,K_{13})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^J\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^J\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1,J_1}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^J\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^J\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1,B_1}t_{J_1}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^J\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^J\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_1,J_1}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_1}t_{J_1}t_{I_8,K_{13}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 1^J 1^K \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{A_1} t_{B_1} t_{J_1} t_{I_8, K_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 0^J \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{A_1} t_{B_1} t_{J_1} t_{I_8, K_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 0^J \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{A_1} t_{B_1} t_{J_1} t_{I_8, K_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 1^K 1^J \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{A_1} t_{B_1} t_{J_1} t_{I_8, K_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 1^K 1^J \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{A_1} t_{B_1} t_{J_1} t_{I_8, K_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{10}, J_2, K_{11}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 0^J 1^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_1, J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^J 1^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_1, J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_1, J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_1, J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_1, J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_1, J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 0^J 1^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1, B_1} t_{J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^J 1^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1, B_1} t_{J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1, B_1} t_{J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1, B_1} t_{J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1, B_1} t_{J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1, B_1} t_{J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 0^J 1^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_1, J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^J 1^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_1, J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_1, J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_1, J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_1, J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_1, J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 0^J 1^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_1} t_{J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^J 1^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_1} t_{J_2} t_{I_{10}, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^J | \hat{g} | 1^K 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_1} t_{J_2} t_{I_{10}, K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_{10},K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_3,K_{11})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_{10},K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_2,K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1,J_2}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1,B_1}t_{J_2}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_1,J_2}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_1}t_{J_2}t_{I_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_3,K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1,J_3}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1,B_1}t_{J_3}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{B_1}t_{A_1,J_3}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_1}t_{J_3}t_{I_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_1)\rangle =$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_9,J_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{14},K_1)\rangle =$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^K 0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|1^K 1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^K|\hat{g}|0^J 1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{12}, K_2)\rangle =$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^K|\hat{g}|0^J 1^K\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_9,J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_9,J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_9,J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_9,J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_9,J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_9,J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_9,J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_9,J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_3)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_9,J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_9,J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_9,J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_9,J_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{14},K_2)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_7,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_7,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_7,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_7,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_7,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_7,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{14},K_3)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_7,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_7,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_7,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_7,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_7,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_7,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{12},K_1)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|0^K0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|1^K1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|0^K0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|1^K1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{10},J_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{14},K_1)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|0^K0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|1^K1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|0^K0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|1^K1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_8,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^K\rangle\langle I_8|\hat{1}_{\bar{\beta}}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar{\beta}}^+|J_0\rangle\langle K_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_8,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^K\rangle\langle I_8|\hat{1}_{\bar{\beta}}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar{\beta}}^+|J_0\rangle\langle K_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}_{\bar{\beta}}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar{\beta}}^+|J_0\rangle\langle K_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_{\bar{\beta}}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar{\beta}}^+|J_0\rangle\langle K_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}_{\bar{\beta}}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar{\beta}}^+|J_0\rangle\langle K_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_{\bar{\beta}}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar{\beta}}^+|J_0\rangle\langle K_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_8,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K0^K\rangle\langle I_8|\hat{1}_{\bar{\beta}}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar{\beta}}^+|J_0\rangle\langle K_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_8,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K1^K\rangle\langle I_8|\hat{1}_{\bar{\beta}}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar{\beta}}^+|J_0\rangle\langle K_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}_{\bar{\beta}}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar{\beta}}^+|J_0\rangle\langle K_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_{\bar{\beta}}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar{\beta}}^+|J_0\rangle\langle K_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_8,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{12},K_2)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_2|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{10},J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{12},K_3)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{10},J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{14},K_2)\rangle=$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|0^K1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat{g}|1^K0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_2|\hat 0^+_\beta\hat 1^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|1^K0^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_2|\hat 1^+_\beta\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_2|\hat 0^+_\alpha\hat 1^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_2|\hat 1^+_\alpha\hat 0^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_8,J_{14}}$$

$$\langle (A_1,B_1)|\hat H|(A_1,B_1,I_8,J_{14},K_3)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 0^+_\beta\hat 1^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 1^+_\beta\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 0^+_\beta\hat 1^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|1^K0^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 1^+_\beta\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 0^+_\alpha\hat 1^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 1^+_\alpha\hat 0^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 0^+_\beta\hat 1^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 1^+_\beta\hat 0^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 0^+_\beta\hat 1^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|1^K0^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 1^+_\beta\hat 0^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 0^+_\alpha\hat 1^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 1^+_\alpha\hat 0^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 0^+_\beta\hat 1^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 1^+_\beta\hat 0^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 0^+_\beta\hat 1^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|1^K0^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 1^+_\beta\hat 0^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 0^+_\alpha\hat 1^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 1^+_\alpha\hat 0^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 0^+_\beta\hat 1^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat g|0^J1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 1^+_\beta\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|0^K1^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 0^+_\beta\hat 1^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I0^J|\hat g|1^K0^K\rangle\langle I_8|\hat 1^-_\beta|I_0\rangle\langle J_{14}|\hat 0^+_\beta|J_0\rangle\langle K_3|\hat 1^+_\beta\hat 0^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^I0^K|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_8,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{11},K_1)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_9,J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{13}, K_1)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{11}, K_2)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_9,J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{11}, K_3)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_9,J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_9,J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_9,J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_9,J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_9,J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_9,J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_9,J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_9,J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_9,J_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{13},K_2)\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_7,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{13},K_3)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_7,J_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 1^J 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1, K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 1^J 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | K_0 \rangle t_{A_1, B_1} t_{K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 1^J 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | K_0 \rangle t_{A_1, B_1} t_{K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 0^K 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | K_0 \rangle t_{A_1, B_1} t_{K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^K 0^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | K_0 \rangle t_{A_1, B_1} t_{K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 1^J 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | K_0 \rangle t_{A_1, B_1} t_{K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 1^J 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | K_0 \rangle t_{A_1, B_1} t_{K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 1^J 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | K_0 \rangle t_{B_1} t_{A_1, K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 1^J 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | K_0 \rangle t_{B_1} t_{A_1, K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 0^K 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | K_0 \rangle t_{B_1} t_{A_1, K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^K 0^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | K_0 \rangle t_{B_1} t_{A_1, K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 1^J 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | K_0 \rangle t_{B_1} t_{A_1, K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 1^J 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_1, K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 1^J 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | K_0 \rangle t_{A_1} t_{B_1} t_{K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 1^J 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_1} t_{K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 0^K 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | K_0 \rangle t_{A_1} t_{B_1} t_{K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^I 1^J | \hat{g} | 1^K 0^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_1} t_{K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 1^J 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1} t_{K_3} t_{I_7, J_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^I 0^K | \hat{g} | 1^J 1^K \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1} t_{K_3} t_{I_7, J_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{10}, J_{11}, K_1) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^K | \hat{g} | 1^J 0^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1, K_1} t_{I_{10}, J_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^K | \hat{g} | 1^J 0^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_1, K_1} t_{I_{10}, J_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^K | \hat{g} | 1^J 1^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1, K_1} t_{I_{10}, J_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^K | \hat{g} | 1^J 1^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | K_0 \rangle t_{A_1} t_{B_1, K_1} t_{I_{10}, J_{11}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 0^K 0^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1, K_1} t_{I_{10}, J_{11}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^I 1^J | \hat{g} | 1^K 1^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | K_0 \rangle t_{A_1} t_{B_1, K_1} t_{I_{10}, J_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^I 0^K | \hat{g} | 1^J 0^K \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | K_0 \rangle t_{A_1, B_1} t_{K_1} t_{I_{10}, J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1,A_1,K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1,A_1,K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1,A_1,K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1,A_1,K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1,A_1,K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1,A_1,K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_{10},J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{13},K_1)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^K 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^K 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^K|\hat{g}|1^J 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_1}t_{I_8,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11},K_2)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^K 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|1^K 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I 0^K|\hat{g}|1^J 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I 1^J|\hat{g}|0^K 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_{10},J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11},K_3)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{10},J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{10},J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{10},J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{10},J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{10},J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_{10},J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{10},J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{10},J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{10},J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{10},J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{10},J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_{10},J_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{13},K_2)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_8,J_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_8,J_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_1,K_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_8,J_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_8,J_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|K_0\rangle t_{A_1,B_1}t_{K_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{1}^+_\beta\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_8,J_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_2|\hat{0}^+_\beta\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,K_2}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_2}t_{I_8,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{13},K_3)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1,K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_1,B_1}t_{K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 0^K|\hat g|1^J 1^K\rangle\langle I_8|\hat 1_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat 1_{\bar\beta}^+|J_0\rangle\langle K_3|\hat 1_{\alpha}^+\hat 0_{\alpha}^-|K_0\rangle t_{B_1}t_{A_1,K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 0^K|\hat g|1^J 1^K\rangle\langle I_8|\hat 1_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat 1_{\bar\beta}^+|J_0\rangle\langle K_3|\hat 0_{\bar\beta}^+\hat 1_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 0^K|\hat g|1^J 1^K\rangle\langle I_8|\hat 1_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat 1_{\bar\beta}^+|J_0\rangle\langle K_3|\hat 1_{\bar\beta}^+\hat 0_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 1^J|\hat g|0^K 1^K\rangle\langle I_8|\hat 1_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat 1_{\bar\beta}^+|J_0\rangle\langle K_3|\hat 0_{\bar\beta}^+\hat 1_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 1^J|\hat g|1^K 0^K\rangle\langle I_8|\hat 1_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat 1_{\bar\beta}^+|J_0\rangle\langle K_3|\hat 1_{\bar\beta}^+\hat 0_{\bar\beta}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 0^K|\hat g|1^J 1^K\rangle\langle I_8|\hat 1_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat 1_{\bar\beta}^+|J_0\rangle\langle K_3|\hat 0_{\alpha}^+\hat 1_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 0^K|\hat g|1^J 1^K\rangle\langle I_8|\hat 1_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat 1_{\bar\beta}^+|J_0\rangle\langle K_3|\hat 1_{\alpha}^+\hat 0_{\alpha}^-|K_0\rangle t_{A_1}t_{B_1}t_{K_3}t_{I_8,J_{13}}$$

$$\langle (A_1,B_1)|\hat H|(B_1,I_{12},J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat g|0^A 0^J\rangle\langle A_0|\hat 0_{\alpha}^+\hat 0_{\alpha}^-|A_1\rangle\langle I_{12}|\hat 0_{\alpha}^+|I_0\rangle\langle J_9|\hat 0_{\alpha}^-|J_0\rangle t_{B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat g|1^A 0^J\rangle\langle A_0|\hat 1_{\alpha}^+\hat 1_{\alpha}^-|A_1\rangle\langle I_{12}|\hat 0_{\alpha}^+|I_0\rangle\langle J_9|\hat 0_{\alpha}^-|J_0\rangle t_{B_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^A|\hat g|0^I 0^J\rangle\langle A_0|\hat 0_{\alpha}^+\hat 0_{\alpha}^-|A_1\rangle\langle I_{12}|\hat 0_{\alpha}^+|I_0\rangle\langle J_9|\hat 0_{\alpha}^-|J_0\rangle t_{B_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^A|\hat g|0^I 0^J\rangle\langle A_0|\hat 1_{\alpha}^+\hat 1_{\alpha}^-|A_1\rangle\langle I_{12}|\hat 0_{\alpha}^+|I_0\rangle\langle J_9|\hat 0_{\alpha}^-|J_0\rangle t_{B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat g|0^A 0^J\rangle\langle A_0|\hat 0_{\bar\beta}^+\hat 0_{\bar\beta}^-|A_1\rangle\langle I_{12}|\hat 0_{\alpha}^+|I_0\rangle\langle J_9|\hat 0_{\alpha}^-|J_0\rangle t_{B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat g|1^A 0^J\rangle\langle A_0|\hat 1_{\bar\beta}^+\hat 1_{\bar\beta}^-|A_1\rangle\langle I_{12}|\hat 0_{\alpha}^+|I_0\rangle\langle J_9|\hat 0_{\alpha}^-|J_0\rangle t_{B_1}t_{I_{12},J_9}$$

$$\langle (A_1,B_1)|\hat H|(B_1,I_{14},J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat g|0^A 0^J\rangle\langle A_0|\hat 0_{\bar\beta}^+\hat 0_{\bar\beta}^-|A_1\rangle\langle I_{14}|\hat 0_{\bar\beta}^+|I_0\rangle\langle J_7|\hat 0_{\bar\beta}^-|J_0\rangle t_{B_1}t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat g|0^A 0^J\rangle\langle A_0|\hat 0_{\alpha}^+\hat 0_{\alpha}^-|A_1\rangle\langle I_{14}|\hat 0_{\bar\beta}^+|I_0\rangle\langle J_7|\hat 0_{\bar\beta}^-|J_0\rangle t_{B_1}t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat g|1^A 0^J\rangle\langle A_0|\hat 1_{\bar\beta}^+\hat 1_{\bar\beta}^-|A_1\rangle\langle I_{14}|\hat 0_{\bar\beta}^+|I_0\rangle\langle J_7|\hat 0_{\bar\beta}^-|J_0\rangle t_{B_1}t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat g|1^A 0^J\rangle\langle A_0|\hat 1_{\alpha}^+\hat 1_{\alpha}^-|A_1\rangle\langle I_{14}|\hat 0_{\bar\beta}^+|I_0\rangle\langle J_7|\hat 0_{\bar\beta}^-|J_0\rangle t_{B_1}t_{I_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^A|\hat g|0^I 0^J\rangle\langle A_0|\hat 0_{\bar\beta}^+\hat 0_{\bar\beta}^-|A_1\rangle\langle I_{14}|\hat 0_{\bar\beta}^+|I_0\rangle\langle J_7|\hat 0_{\bar\beta}^-|J_0\rangle t_{B_1}t_{I_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^A|\hat g|0^I 0^J\rangle\langle A_0|\hat 1_{\bar\beta}^+\hat 1_{\bar\beta}^-|A_1\rangle\langle I_{14}|\hat 0_{\bar\beta}^+|I_0\rangle\langle J_7|\hat 0_{\bar\beta}^-|J_0\rangle t_{B_1}t_{I_{14},J_7}$$

$$\langle (A_1,B_1)|\hat H|(B_1,I_{12},J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat g|0^A 1^J\rangle\langle A_0|\hat 0_{\alpha}^+\hat 0_{\alpha}^-|A_1\rangle\langle I_{12}|\hat 0_{\alpha}^+|I_0\rangle\langle J_{10}|\hat 1_{\alpha}^-|J_0\rangle t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I1^J\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I1^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{I_{12},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(B_1,I_{14},J_8)\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I1^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I1^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{I_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_2,B_1,I_{12},J_9)\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J0^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I0^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J0^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I0^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_3, B_1, I_{12}, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_3,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_3,B_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^A|\hat{g}|0^J 0^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_3,B_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^A|\hat{g}|0^I 0^J\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_3,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_3,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_3,B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^A|\hat{g}|0^J 0^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^A|\hat{g}|0^I 0^J\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{12},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_2, B_1, I_{14}, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_2,B_1}t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_2,B_1}t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_2,B_1}t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_2,B_1}t_{I_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^A|\hat{g}|0^J 0^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_2,B_1}t_{I_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^A|\hat{g}|0^I 0^J\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_2,B_1}t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^A|\hat{g}|0^J 0^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^A|\hat{g}|0^I 0^J\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{14},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_3,B_1,I_{14},J_7)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_3,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_3,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_3,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_3,B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^A|\hat{g}|0^J 0^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_3,B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^A|\hat{g}|0^I 0^J\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_3,B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^A|\hat{g}|0^J 0^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^A|\hat{g}|0^I 0^J\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{14},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_2,B_1,I_{12},J_{10})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_2,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_2,B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^A|\hat{g}|1^J 0^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_2,B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^A|\hat{g}|0^I 1^J\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_2,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_2,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_2,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^A|\hat{g}|1^J 0^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^A|\hat{g}|0^I 1^J\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_3,B_1,I_{12},J_{10})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{12},J_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_2,B_1,I_{14},J_8)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J0^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J0^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I1^J\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{14},J_8}$$

$\langle(A_1,B_1)|\hat{H}|(A_3,B_1,I_{14},J_8)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_3,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_3,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_3,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_3,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J0^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_3,B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_3,B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J0^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_3}t_{B_1}t_{I_{14},J_8}$$

$\langle(A_1,B_1)|\hat{H}|(B_1,I_{11},J_9)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A0^J\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A0^J\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{I_{11},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|1^I0^J\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{I_{11},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|1^I0^J\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A0^J\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A0^J\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{I_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(B_1, I_{13}, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^A 0^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1} t_{I_{13},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^A 0^J\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1} t_{I_{13},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1} t_{I_{13},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1} t_{I_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^A|\hat{g}|1^I 0^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1} t_{I_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 1^A|\hat{g}|1^I 0^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1} t_{I_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(B_1, I_{11}, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^A 1^J\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1} t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^A 1^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1} t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^A|\hat{g}|1^I 1^J\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1} t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 1^A|\hat{g}|1^I 1^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1} t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^A 1^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1} t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^A 1^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1} t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(B_1, I_{13}, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^A 1^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1} t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^A 1^J\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1} t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^A 1^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1} t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^A 1^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1} t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^A|\hat{g}|1^I 1^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1} t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 1^A|\hat{g}|1^I 1^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1} t_{I_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_2, B_1, I_{11}, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2,B_1} t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^A|\hat{g}|0^J1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^A|\hat{g}|1^I0^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^A|\hat{g}|0^J1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^A|\hat{g}|1^I0^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{11},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_3,B_1,I_{11},J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^A|\hat{g}|0^J1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^A|\hat{g}|1^I0^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^A|\hat{g}|0^J1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^A|\hat{g}|1^I0^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{11},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_2,B_1,I_{13},J_7)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^A|\hat{g}|0^J 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^A|\hat{g}|1^I 0^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^A|\hat{g}|0^J 1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^A|\hat{g}|1^I 0^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{13},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_3,B_1,I_{13},J_7)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_3,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_3,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_3,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_3,B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^A|\hat{g}|0^J 1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_3,B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^A|\hat{g}|1^I 0^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_3,B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 0^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^A|\hat{g}|0^J 1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^A|\hat{g}|1^I 0^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_2, B_1, I_{11}, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_3, B_1, I_{11}, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{11},J_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_2, B_1, I_{13}, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_{13},J_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_3, B_1, I_{13}, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_3,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_3,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_3,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_3,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_3,B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_3,B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_1, J_9)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^I 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|1^I 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^J 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^J 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|0^J 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|0^J 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^I 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|1^I 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^J 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^J 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|0^J 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|0^J 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_1, J_7)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^I 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},J_7}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|1^I 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},J_7}t_{B_1,I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^J 0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},J_7}t_{B_1,I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|0^J 1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},J_7}t_{B_1,I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^J 0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},J_7}t_{B_1,I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|0^J 1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},J_7}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^I 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|1^I 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^J 0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|0^J 1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^J 0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_1,J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_1,J_8)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},J_8}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},J_8}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},J_8}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},J_8}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},J_8}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},J_8}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_1}$$

$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_2,J_9)\rangle =$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_2}$$

$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_3,J_9)\rangle =$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_3}$$

$\langle (A_1,B_1)|\hat{H}|(A_{14},B_1,I_2,J_7)\rangle =$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_2}$$

$\langle (A_1,B_1)|\hat{H}|(A_{14},B_1,I_3,J_7)\rangle =$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_2,J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_3,J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_2,J_8)\rangle=$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_3,J_8)\rangle=$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_3}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_1,J_9)\rangle=$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_1}$$

$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_1,J_7)\rangle=$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_1,J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_1,I_1,J_8)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{13},J_8}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^J1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{13},J_8}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^J1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^J1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_2,J_9)\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^I0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^I0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_3,J_9)\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^I0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^I 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^I 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_1,I_2,J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^I 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^I 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^I 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^I 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_1,I_3,J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^I 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^I 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_2,J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_3,J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|0^I 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|0^I 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_1,I_2,J_8)\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|0^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|0^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_1,I_3,J_8)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(B_1,I_9,J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A0^J\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I0^J\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I0^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A0^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{I_9,J_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(B_1,I_7,J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A0^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A0^J\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A0^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I0^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I0^J\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{I_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(B_1,I_{10},J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A0^J\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A0^J\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|1^I0^J\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|1^I0^J\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A0^J\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A0^J\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{I_{10},J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(B_1,I_8,J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A0^J\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A0^J\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A0^J\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A0^J\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|1^I0^J\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|1^I0^J\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{I_8,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_2,B_1,I_9,J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_2,B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_2,B_1}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I0^J\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_2,B_1}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J0^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_2,B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_2,B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_2,B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_2}t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I0^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J0^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_3,B_1,I_9,J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I0^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I0^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_2,B_1,I_7,J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I0^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J0^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_2}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_2}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_2}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_2}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I0^J\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_2}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J0^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_2}t_{B_1}t_{I_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_3,B_1,I_7,J_{14})\rangle=$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_3,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_3,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_3,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_3,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I0^J\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_3,B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J0^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_3,B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_3}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_3}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_3}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_3}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I0^J\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_3}t_{B_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J0^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_3}t_{B_1}t_{I_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_2,B_1,I_{10},J_{12})\rangle=$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_2,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_2,B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I0^J\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_2,B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_2,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_2,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I0^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{10},J_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_3,B_1,I_{10},J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I0^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I0^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{10},J_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_2,B_1,I_8,J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I0^J\rangle\langle A_2|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_2,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J1^I\rangle\langle A_2|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_2,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_2}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_2}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_2}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_2}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I0^J\rangle\langle A_2|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_2}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J1^I\rangle\langle A_2|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_2}t_{B_1}t_{I_8,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_3,B_1,I_8,J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_3,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_3,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_3,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_3,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I0^J\rangle\langle A_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_3,B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J1^I\rangle\langle A_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_3,B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_3}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_3}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_3}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A0^J\rangle\langle A_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_3}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I0^J\rangle\langle A_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_3}t_{B_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^J1^I\rangle\langle A_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle t_{A_3}t_{B_1}t_{I_8,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(B_1,I_9,J_{11})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_0|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|A_1\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_0|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|A_1\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{B_1}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I1^J\rangle\langle A_0|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|A_1\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{B_1}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I1^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{I_9,J_{11}}$$

$\langle(A_1,B_1)|\hat{H}|(B_1,I_7,J_{13})\rangle =$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^A1^J\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^A1^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|0^I1^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|0^I1^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{I_7,J_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(B_1,I_{10},J_{11})\rangle =$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|1^I1^J\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^A|\hat{g}|1^I1^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{I_{10},J_{11}}$$

$\langle(A_1,B_1)|\hat{H}|(B_1,I_8,J_{13})\rangle =$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^A1^J\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^A1^J\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^A|\hat{g}|1^I1^J\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^A 1^A|\hat{g}|1^I 1^J\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{I_8,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_2,B_1,I_9,J_{11})\rangle =$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2,B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2,B_1}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^A 1^A|\hat{g}|0^I 1^J\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2,B_1}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^A 1^A|\hat{g}|1^J 0^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2,B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2,B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2,B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^A 1^A|\hat{g}|0^I 1^J\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^A 1^A|\hat{g}|1^J 0^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_9,J_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_3,B_1,I_9,J_{11})\rangle =$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^A 1^A|\hat{g}|0^I 1^J\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^A 1^A|\hat{g}|1^J 0^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^A 1^J\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^A 1^A|\hat{g}|0^I 1^J\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 0^A 1^A|\hat{g}|1^J 0^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_9,J_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_2,B_1,I_7,J_{13})\rangle=$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J0^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J0^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_7,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_3,B_1,I_7,J_{13})\rangle=$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J0^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3,B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|0^I1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J0^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_7,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_2,B_1,I_{10},J_{11})\rangle=$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_2}t_{B_1}t_{I_{10},J_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_3,B_1,I_{10},J_{11})\rangle=$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3,B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_3}t_{B_1}t_{I_{10},J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_2,B_1,I_8,J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2,B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_2}t_{B_1}t_{I_8,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_3,B_1,I_8,J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3,B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3,B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3,B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3,B_1}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3,B_1}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3,B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^A1^J\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^I1^J\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^A|\hat{g}|1^J1^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_3}t_{B_1}t_{I_8,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_9,J_1)\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{12},I_9}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{12},I_9}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_9}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{12},I_9}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{12},I_9}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_9}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_1,I_7,J_1)\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{14},I_7}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{14},I_7}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{14},I_7}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{14},I_7}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{14},I_7}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{14},I_7}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_1}$$

$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_9,J_2)\rangle =$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_9}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{12},I_9}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{12},I_9}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{12},I_9}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_9}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{12},I_9}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_2}$$

$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_9,J_3)\rangle =$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_9}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{12},I_9}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{12},I_9}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{12},I_9}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_9}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{12},I_9}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_3}$$

$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_7,J_2)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{14},I_7}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{14},I_7}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{14},I_7}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{14},I_7}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{14},I_7}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{14},I_7}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_2}$$

$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_7,J_3)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{14},I_7}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{14},I_7}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{14},I_7}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{14},I_7}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{14},I_7}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\alpha|J_0\rangle t_{A_{14},I_7}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_{10},J_1)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_1,I_8,J_1)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{14},I_8}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{14},I_8}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{14},I_8}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|1^J 1^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{14},I_8}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 0^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{14},I_8}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 1^J|\hat{g}|1^I 1^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{14},I_8}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 0^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 1^J|\hat{g}|1^I 1^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|0^J 0^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|1^J 1^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 0^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 1^J|\hat{g}|1^I 1^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_{10},J_2)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 1^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 1^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 1^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 1^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|1^J 0^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|0^J 1^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 1^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 1^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 1^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 1^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|1^J 0^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|0^J 1^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_{10},J_3)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 1^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 0^A 0^J|\hat{g}|1^I 1^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{12},I_{10}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_8,J_2)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{14},I_8}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{14},I_8}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{14},I_8}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{14},I_8}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{14},I_8}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{14},I_8}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_8,J_3)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{14},I_8}t_{B_1,J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{14},I_8}t_{B_1,J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{14},I_8}t_{B_1,J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{14},I_8}t_{B_1,J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{14},I_8}t_{B_1,J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{14},I_8}t_{B_1,J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_9,J_1)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{11},I_9}t_{B_1,J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{11},I_9}t_{B_1,J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{11},I_9}t_{B_1,J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{11},I_9}t_{B_1,J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{11},I_9}t_{B_1,J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{11},I_9}t_{B_1,J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_1,I_7,J_1)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{13},I_7}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{13},I_7}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{13},I_7}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{13},I_7}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{13},I_7}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{13},I_7}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_9,J_2)\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{11},I_9}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{11},I_9}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{11},I_9}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{11},I_9}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{11},I_9}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{11},I_9}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_9, J_3)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{11},I_9}t_{B_1,J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{11},I_9}t_{B_1,J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{11},I_9}t_{B_1,J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{11},I_9}t_{B_1,J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{11},I_9}t_{B_1,J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{11},I_9}t_{B_1,J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_7, J_2)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{13},I_7}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{13},I_7}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{13},I_7}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{13},I_7}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{13},I_7}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{13},I_7}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_2}$$

$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_7, J_3)\rangle =$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{13},I_7}t_{B_1,J_3}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{13},I_7}t_{B_1,J_3}$

$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{13},I_7}t_{B_1,J_3}$

$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{13},I_7}t_{B_1,J_3}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{13},I_7}t_{B_1,J_3}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{13},I_7}t_{B_1,J_3}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_3}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_3}$

$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_3}$

$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^J 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_3}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_3}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_3}$

$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{10}, J_1)\rangle =$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^J|\hat{g}|1^I 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_1}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^J|\hat{g}|1^I 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_1}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^J|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_1}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^J|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_1}$

$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^J 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_1}$

$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^J 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_1}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^J|\hat{g}|1^I 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_1}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^J|\hat{g}|1^I 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_1}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^J|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_1}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^J|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_1}$

$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^J 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_1}$

$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^J 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_1}$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_8, J_1)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_1,J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_1,J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_1,J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_1,J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{13},I_8}t_{B_1,J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{13},I_8}t_{B_1,J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{10}, J_2)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|0^J 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{10}, J_3)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|1^J 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|0^J 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{11},I_{10}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|1^J 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|0^J 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_8, J_2)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{13},I_8}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{13},I_8}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|1^J 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{13},I_8}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|0^J 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{13},I_8}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{13},I_8}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{13},I_8}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|1^J 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|0^J 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_2}$$

$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_8,J_3)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_{13},I_8}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_{13},I_8}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_3}$$

$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_1,J_{12})\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^I0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^I0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_1}$$

$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_1,J_{14})\rangle =$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^I 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_1}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^I 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^J 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^J 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_1}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^I 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_1}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^I 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^J 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^J 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_1}$$

$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_2,J_{12})\rangle =$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^I 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^I 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^I 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^I 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_1,I_3,J_{12})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_1,I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_2,J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_3,J_{14})\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_1,I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_1,I_1,J_{12})\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_1}$$

$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_1,J_{14})\rangle=$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^I0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^I0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^I0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^I0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_1}$$

$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_2,J_{12})\rangle=$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^I0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^I0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_3,J_{12})\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^I0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^I0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},J_{12}}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^I0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^I0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_2,J_{14})\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^I0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^I0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^I0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^I0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_1,I_3,J_{14})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^I0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^I0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^I0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^I0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_1,I_1,J_{11})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^I1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^I1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^I1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^I1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_1,J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_2,J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_1,I_3,J_{11})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}}t_{B_1,I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_2,J_{13})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^I 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_3,J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_1,I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_1,I_1,J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{I}1^{J}\rangle\langle A_{10}|\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle I_{1}|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_{0}\rangle\langle J_{11}|\hat{1}^{+}_{\alpha}|J_{0}\rangle t_{A_{10},J_{11}}t_{B_{1},I_{1}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{I}1^{J}\rangle\langle A_{10}|\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle I_{1}|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_{0}\rangle\langle J_{11}|\hat{1}^{+}_{\alpha}|J_{0}\rangle t_{A_{10},J_{11}}t_{B_{1},I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle A_{10}|\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle I_{1}|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_{0}\rangle\langle J_{11}|\hat{1}^{+}_{\alpha}|J_{0}\rangle t_{A_{10},J_{11}}t_{B_{1},I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{10}|\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle I_{1}|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_{0}\rangle\langle J_{11}|\hat{1}^{+}_{\alpha}|J_{0}\rangle t_{A_{10},J_{11}}t_{B_{1},I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle A_{10}|\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle I_{1}|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|I_{0}\rangle\langle J_{11}|\hat{1}^{+}_{\alpha}|J_{0}\rangle t_{A_{10},J_{11}}t_{B_{1},I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{10}|\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle I_{1}|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|I_{0}\rangle\langle J_{11}|\hat{1}^{+}_{\alpha}|J_{0}\rangle t_{A_{10},J_{11}}t_{B_{1},I_{1}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{I}1^{J}\rangle\langle A_{10}|\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle I_{1}|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_{0}\rangle\langle J_{11}|\hat{1}^{+}_{\alpha}|J_{0}\rangle t_{B_{1}}t_{A_{10},J_{11}}t_{I_{1}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{I}1^{J}\rangle\langle A_{10}|\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle I_{1}|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_{0}\rangle\langle J_{11}|\hat{1}^{+}_{\alpha}|J_{0}\rangle t_{B_{1}}t_{A_{10},J_{11}}t_{I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle A_{10}|\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle I_{1}|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_{0}\rangle\langle J_{11}|\hat{1}^{+}_{\alpha}|J_{0}\rangle t_{B_{1}}t_{A_{10},J_{11}}t_{I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{10}|\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle I_{1}|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_{0}\rangle\langle J_{11}|\hat{1}^{+}_{\alpha}|J_{0}\rangle t_{B_{1}}t_{A_{10},J_{11}}t_{I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle A_{10}|\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle I_{1}|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|I_{0}\rangle\langle J_{11}|\hat{1}^{+}_{\alpha}|J_{0}\rangle t_{B_{1}}t_{A_{10},J_{11}}t_{I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{10}|\hat{1}^{-}_{\alpha}|A_{1}\rangle\langle I_{1}|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|I_{0}\rangle\langle J_{11}|\hat{1}^{+}_{\alpha}|J_{0}\rangle t_{B_{1}}t_{A_{10},J_{11}}t_{I_{1}}$$

$$\langle (A_{1},B_{1})|\hat{H}|(A_{8},B_{1},I_{1},J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{I}1^{J}\rangle\langle A_{8}|\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{1}|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle t_{A_{8},J_{13}}t_{B_{1},I_{1}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{I}1^{J}\rangle\langle A_{8}|\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{1}|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle t_{A_{8},J_{13}}t_{B_{1},I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle A_{8}|\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{1}|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle t_{A_{8},J_{13}}t_{B_{1},I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle A_{8}|\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{1}|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle t_{A_{8},J_{13}}t_{B_{1},I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{8}|\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{1}|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle t_{A_{8},J_{13}}t_{B_{1},I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{8}|\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{1}|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle t_{A_{8},J_{13}}t_{B_{1},I_{1}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{I}1^{J}\rangle\langle A_{8}|\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{1}|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle t_{B_{1}}t_{A_{8},J_{13}}t_{I_{1}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{I}1^{J}\rangle\langle A_{8}|\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{1}|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle t_{B_{1}}t_{A_{8},J_{13}}t_{I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle A_{8}|\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{1}|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle t_{B_{1}}t_{A_{8},J_{13}}t_{I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle A_{8}|\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{1}|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle t_{B_{1}}t_{A_{8},J_{13}}t_{I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{8}|\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{1}|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle t_{B_{1}}t_{A_{8},J_{13}}t_{I_{1}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{8}|\hat{1}^{-}_{\beta}|A_{1}\rangle\langle I_{1}|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle t_{B_{1}}t_{A_{8},J_{13}}t_{I_{1}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_2, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^I 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_1,I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^I 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_1,I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^I 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^I 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_3, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^I 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_1,I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^I 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_1,I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^I 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^I 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_2, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^I|\hat{g}|0^I 1^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_2|\hat{0}_\beta^+ \hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_1,I_2}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^I 1^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_2|\hat{1}_\beta^+ \hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_2|\hat{0}_\beta^+ \hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_2|\hat{0}_\alpha^+ \hat{1}_\alpha^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_2|\hat{1}_\beta^+ \hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_1,I_2}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_2|\hat{1}_\alpha^+ \hat{0}_\alpha^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_1,I_2}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^I|\hat{g}|0^I 1^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_2|\hat{0}_\beta^+ \hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_2}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^I 1^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_2|\hat{1}_\beta^+ \hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_2|\hat{0}_\beta^+ \hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_2|\hat{0}_\alpha^+ \hat{1}_\alpha^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_2|\hat{1}_\beta^+ \hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_2|\hat{1}_\alpha^+ \hat{0}_\alpha^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_3, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^I|\hat{g}|0^I 1^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_3|\hat{0}_\beta^+ \hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_1,I_3}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^I 1^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_3|\hat{1}_\beta^+ \hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_3|\hat{0}_\beta^+ \hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_3|\hat{0}_\alpha^+ \hat{1}_\alpha^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_3|\hat{1}_\beta^+ \hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_1,I_3}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_3|\hat{1}_\alpha^+ \hat{0}_\alpha^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_1,I_3}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^I|\hat{g}|0^I 1^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_3|\hat{0}_\beta^+ \hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_3}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^I 1^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_3|\hat{1}_\beta^+ \hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_3|\hat{0}_\beta^+ \hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_3|\hat{0}_\alpha^+ \hat{1}_\alpha^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_3|\hat{1}_\beta^+ \hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^J 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_3|\hat{1}_\alpha^+ \hat{0}_\alpha^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{12}, J_1)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{14}, J_1)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|0^J0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^J|\hat{g}|0^I 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_{12},J_2)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^J 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^J 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^J 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^J 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_{12},J_3)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^J 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^J 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_1,J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_3}$$

$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_{14},J_2)\rangle =$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_2}$$

$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_{14},J_3)\rangle =$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^J1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_7,I_{14}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^J0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\alpha^-\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_1,I_{12},J_1)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_1,I_{14},J_1)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_1,I_{12},J_2)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_1,I_{12},J_3)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_1,I_{14},J_2)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\alpha^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\alpha^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_1,I_{14},J_3)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_8,I_{14}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^J0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_{11},J_1)\rangle=$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_{13},J_1)\rangle=$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{13}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{13}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{13}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{13}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_7,I_{13}}t_{B_1,J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^J|\hat{g}|1^I 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_7,I_{13}}t_{B_1,J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|1^I 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^J|\hat{g}|1^I 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^J 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^J 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|1^I 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^J|\hat{g}|1^I 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_1,I_{11},J_2)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^J 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^J 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^J 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^J 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_1,I_{11},J_3)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_9,I_{11}}t_{B_1,J_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle A_{9}|\hat{0}_{\alpha}^{-}|A_{1}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{1},J_{3}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle A_{9}|\hat{0}_{\alpha}^{-}|A_{1}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{1},J_{3}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{9}|\hat{0}_{\alpha}^{-}|A_{1}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{3}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{9}|\hat{0}_{\alpha}^{-}|A_{1}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{3}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{9}|\hat{0}_{\alpha}^{-}|A_{1}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{3}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{9}|\hat{0}_{\alpha}^{-}|A_{1}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{3}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle A_{9}|\hat{0}_{\alpha}^{-}|A_{1}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{3}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle A_{9}|\hat{0}_{\alpha}^{-}|A_{1}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{3}}$$

$$\langle(A_{1},B_{1})|\hat{H}|(A_{7},B_{1},I_{13},J_{2})\rangle=$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{7},I_{13}}t_{B_{1},J_{2}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{7},I_{13}}t_{B_{1},J_{2}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{7},I_{13}}t_{B_{1},J_{2}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{7},I_{13}}t_{B_{1},J_{2}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{7},I_{13}}t_{B_{1},J_{2}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{7},I_{13}}t_{B_{1},J_{2}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{7},I_{13}}t_{J_{2}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{7},I_{13}}t_{J_{2}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{7},I_{13}}t_{J_{2}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{7},I_{13}}t_{J_{2}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{7},I_{13}}t_{J_{2}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{7},I_{13}}t_{J_{2}}$$

$$\langle(A_{1},B_{1})|\hat{H}|(A_{7},B_{1},I_{13},J_{3})\rangle=$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{7},I_{13}}t_{B_{1},J_{3}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{7},I_{13}}t_{B_{1},J_{3}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle A_{7}|\hat{0}_{\beta}^{-}|A_{1}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{7},I_{13}}t_{B_{1},J_{3}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{13}}t_{B_1,J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_7,I_{13}}t_{B_1,J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_7,I_{13}}t_{B_1,J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^J1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^J0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_{11},J_1)\rangle=$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_{13},J_1)\rangle=$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_1,I_{11},J_2)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_1,I_{11},J_3)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_{13},J_2)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_{13},J_3)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_8,I_{13}}t_{B_1,J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^J0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,I_{12},J_9)\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|0^I0^J\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|0^I0^J\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{I_{12},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,I_{14},J_7)\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|0^I0^J\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{I_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^B|\hat{g}|0^I 0^J\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{I_{14},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,I_{12},J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^B 1^J\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{I_{12},J_{10}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{I_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^B|\hat{g}|0^I 1^J\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{I_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^B|\hat{g}|0^I 1^J\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{I_{12},J_{10}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^B 1^J\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{I_{12},J_{10}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{I_{12},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,I_{14},J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^B 1^J\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{I_{14},J_8}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^B 1^J\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{I_{14},J_8}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{I_{14},J_8}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{I_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^B|\hat{g}|0^I 1^J\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{I_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^B|\hat{g}|0^I 1^J\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{I_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_2,I_{12},J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^J 0^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^I 0^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_{12},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_3,I_{12},J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_3}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_3}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,B_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{12},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_2,I_{14},J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{14},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_3,I_{14},J_7)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{14},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_2,I_{12},J_{10})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_2}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J0^I\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_2}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I1^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,B_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J0^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I1^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{12},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_3,I_{12},J_{10})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J0^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I1^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J0^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I1^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{12},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_2,I_{14},J_8)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_2}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_2}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_2}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_2}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|1^J 0^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_2}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^I 1^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_2}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|1^J 0^I\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^I 1^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_3,I_{14},J_8)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_3}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_3}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_3}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_3}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|1^J 0^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_3}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^I 1^J\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,B_3}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 1^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|1^J 0^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{14},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^I 1^J\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,I_{11},J_9)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^B 0^J\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{I_{11},J_9}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^B|\hat{g}|1^I 0^J\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{I_{11},J_9}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 1^B 1^B | \hat{g} | 1^I 0^J \rangle \langle B_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle t_{A_1} t_{I_{11}, J_9}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^B 0^J \rangle \langle B_0 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle t_{A_1} t_{I_{11}, J_9}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 1^B 1^I | \hat{g} | 1^B 0^J \rangle \langle B_0 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle t_{A_1} t_{I_{11}, J_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, I_{13}, J_7) \rangle =$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^B 0^J \rangle \langle B_0 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle t_{A_1} t_{I_{13}, J_7}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^B 0^J \rangle \langle B_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle t_{A_1} t_{I_{13}, J_7}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 1^B 1^I | \hat{g} | 1^B 0^J \rangle \langle B_0 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle t_{A_1} t_{I_{13}, J_7}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 1^B 1^I | \hat{g} | 1^B 0^J \rangle \langle B_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle t_{A_1} t_{I_{13}, J_7}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^B | \hat{g} | 1^I 0^J \rangle \langle B_0 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle t_{A_1} t_{I_{13}, J_7}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 1^B 1^B | \hat{g} | 1^I 0^J \rangle \langle B_0 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle t_{A_1} t_{I_{13}, J_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, I_{11}, J_{10}) \rangle =$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^B 1^J \rangle \langle B_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle t_{A_1} t_{I_{11}, J_{10}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 1^B 1^I | \hat{g} | 1^B 1^J \rangle \langle B_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle t_{A_1} t_{I_{11}, J_{10}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^B | \hat{g} | 1^I 1^J \rangle \langle B_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle t_{A_1} t_{I_{11}, J_{10}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 1^B 1^B | \hat{g} | 1^I 1^J \rangle \langle B_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle t_{A_1} t_{I_{11}, J_{10}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^B 1^J \rangle \langle B_0 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle t_{A_1} t_{I_{11}, J_{10}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 1^B 1^I | \hat{g} | 1^B 1^J \rangle \langle B_0 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle t_{A_1} t_{I_{11}, J_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, I_{13}, J_8) \rangle =$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^B 1^J \rangle \langle B_0 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle t_{A_1} t_{I_{13}, J_8}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^B 1^J \rangle \langle B_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle t_{A_1} t_{I_{13}, J_8}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 1^B 1^I | \hat{g} | 1^B 1^J \rangle \langle B_0 | \hat{1}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle t_{A_1} t_{I_{13}, J_8}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 1^B 1^I | \hat{g} | 1^B 1^J \rangle \langle B_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle t_{A_1} t_{I_{13}, J_8}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^B | \hat{g} | 1^I 1^J \rangle \langle B_0 | \hat{0}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle t_{A_1} t_{I_{13}, J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|1^I1^J\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{I_{13},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_2,I_{11},J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I0^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I0^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{11},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_3,I_{11},J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I0^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I0^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{11},J_9}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_2,I_{13},J_7)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I0^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I0^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{13},J_7}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_3,I_{13},J_7)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I0^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{13},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J1^I\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I0^J\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{13},J_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_2,I_{11},J_{10})\rangle =$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I1^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J1^I\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I1^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_2}t_{I_{11},J_{10}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_3,I_{11},J_{10})\rangle =$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J1^I\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I1^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,B_3}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_3}t_{I_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J1^I\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I1^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{11},J_{10}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_2,I_{13},J_8)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I1^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_2}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J1^I\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I1^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_{13},J_8}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_3,I_{13},J_8)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I1^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,B_3}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J1^I\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I1^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_{13},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_1,J_9)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^I0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^I0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J0^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J0^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^I0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^I0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J0^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J0^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{14},I_1,J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J0^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J0^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_{14},J_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^I 0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^I 0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 0^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^J 1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 0^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^J 1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{12},I_1,J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^I 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^I 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{12},J_{10}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{12},J_{10}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{12},J_{10}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{12},J_{10}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^I 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^I 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{14},I_1,J_8)\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^I 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_{14},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^I 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_1}t_{B_{14},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^I 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^I 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{12},I_2,J_9)\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{12},J_9}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{12},J_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{12},J_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{12},J_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{12},J_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{12},J_9}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{12},I_3,J_9)\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{12},J_9}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{12},J_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{12},J_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^I0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^I0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{14},I_2,J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{14},I_3,J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{14},J_7}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_3|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_1,I_3}t_{B_{14},J_7}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_1,I_3}t_{B_{14},J_7}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_1,I_3}t_{B_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^I0^J\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_3|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^I0^J\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_3|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_3|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_3|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{12},I_2,J_{10})\rangle =$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_{\alpha}|B_1\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,I_2}t_{B_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^I1^J\rangle\langle B_{12}|\hat{0}^+_{\alpha}|B_1\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,I_2}t_{B_{12},J_{10}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_{\alpha}|B_1\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,I_2}t_{B_{12},J_{10}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_{\alpha}|B_1\rangle\langle I_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,I_2}t_{B_{12},J_{10}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_{\alpha}|B_1\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,I_2}t_{B_{12},J_{10}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_{\alpha}|B_1\rangle\langle I_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,I_2}t_{B_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_{\alpha}|B_1\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^I1^J\rangle\langle B_{12}|\hat{0}^+_{\alpha}|B_1\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_{\alpha}|B_1\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_{\alpha}|B_1\rangle\langle I_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_{\alpha}|B_1\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_{\alpha}|B_1\rangle\langle I_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{12},I_3,J_{10})\rangle =$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_{\alpha}|B_1\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,I_3}t_{B_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^I1^J\rangle\langle B_{12}|\hat{0}^+_{\alpha}|B_1\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,I_3}t_{B_{12},J_{10}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{12},J_{10}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{12},J_{10}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{12},J_{10}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{14},I_2,J_8)\rangle =$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{14},J_8}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{14},J_8}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{14},J_8}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{14},J_8}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_2}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{14},I_3,J_8)\rangle =$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{14},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{14},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{14},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{14},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_1,J_9)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^I0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^I0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^I0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^I0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_1,J_7)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^I0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^I0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_{13},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_{13},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_{13},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_{13},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1,I_1}t_{B_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^I0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^I0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{11},I_1,J_{10})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J0^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J0^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J1^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J1^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_1}t_{B_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J0^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J0^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J1^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J1^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_1, J_8)\rangle =$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|0^I 1^J\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_1|\hat{0}_\beta^+ \hat{0}_\beta^-|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,I_1} t_{B_{13},J_8}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 1^B 1^I|\hat{g}|1^I 1^J\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_1|\hat{1}_\beta^+ \hat{1}_\beta^-|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,I_1} t_{B_{13},J_8}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|1^J 0^I\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_1|\hat{0}_\beta^+ \hat{0}_\beta^-|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,I_1} t_{B_{13},J_8}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 1^I|\hat{g}|1^J 1^I\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_1|\hat{1}_\beta^+ \hat{1}_\beta^-|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,I_1} t_{B_{13},J_8}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|1^J 0^I\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_1|\hat{0}_\alpha^+ \hat{0}_\alpha^-|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,I_1} t_{B_{13},J_8}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 1^I|\hat{g}|1^J 1^I\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_1|\hat{1}_\alpha^+ \hat{1}_\alpha^-|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,I_1} t_{B_{13},J_8}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|0^I 1^J\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_1|\hat{0}_\beta^+ \hat{0}_\beta^-|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_{13},J_8} t_{I_1}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 1^B 1^I|\hat{g}|1^I 1^J\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_1|\hat{1}_\beta^+ \hat{1}_\beta^-|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_{13},J_8} t_{I_1}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|1^J 0^I\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_1|\hat{0}_\beta^+ \hat{0}_\beta^-|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_{13},J_8} t_{I_1}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 1^I|\hat{g}|1^J 1^I\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_1|\hat{1}_\beta^+ \hat{1}_\beta^-|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_{13},J_8} t_{I_1}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|1^J 0^I\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_1|\hat{0}_\alpha^+ \hat{0}_\alpha^-|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_{13},J_8} t_{I_1}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 1^I|\hat{g}|1^J 1^I\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_1|\hat{1}_\alpha^+ \hat{1}_\alpha^-|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_{13},J_8} t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_2, J_9)\rangle =$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|1^I 0^J\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_2|\hat{0}_\alpha^+ \hat{1}_\alpha^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,I_2} t_{B_{11},J_9}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 1^B 1^I|\hat{g}|0^I 0^J\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_2|\hat{1}_\alpha^+ \hat{0}_\alpha^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,I_2} t_{B_{11},J_9}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_2|\hat{0}_\alpha^+ \hat{1}_\alpha^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,I_2} t_{B_{11},J_9}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_2|\hat{0}_\beta^+ \hat{1}_\beta^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,I_2} t_{B_{11},J_9}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_2|\hat{1}_\alpha^+ \hat{0}_\alpha^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,I_2} t_{B_{11},J_9}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_2|\hat{1}_\beta^+ \hat{0}_\beta^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1,I_2} t_{B_{11},J_9}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|1^I 0^J\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_2|\hat{0}_\alpha^+ \hat{1}_\alpha^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1} t_{B_{11},J_9} t_{I_2}$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 1^B 1^I|\hat{g}|0^I 0^J\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_2|\hat{1}_\alpha^+ \hat{0}_\alpha^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1} t_{B_{11},J_9} t_{I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_2|\hat{0}_\alpha^+ \hat{1}_\alpha^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1} t_{B_{11},J_9} t_{I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_2|\hat{0}_\beta^+ \hat{1}_\beta^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1} t_{B_{11},J_9} t_{I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_2|\hat{1}_\alpha^+ \hat{0}_\alpha^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1} t_{B_{11},J_9} t_{I_2}$$

$$+\frac{1}{4}\sum_I \sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_2|\hat{1}_\beta^+ \hat{0}_\beta^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_1} t_{B_{11},J_9} t_{I_2}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_{11}, I_3, J_9)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{11},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{11},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_3}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_{13}, I_2, J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_2}t_{B_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_3, J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_2, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_2}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_3,J_{10})\rangle =$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_3}t_{B_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_3}t_{B_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_3}t_{B_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_3}t_{B_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_3}t_{B_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1,I_3}t_{B_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_3}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_2,J_8)\rangle =$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^I1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,I_2}t_{B_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,I_2}t_{B_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,I_2}t_{B_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,I_2}t_{B_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,I_2}t_{B_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1,I_2}t_{B_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^I1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_2}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_3,J_8)\rangle =$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1,I_3}t_{B_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_3}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,I_9,J_{12})\rangle =$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{I_9,J_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^B|\hat{g}|0^I0^J\rangle\langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{I_9,J_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^B|\hat{g}|0^I0^J\rangle\langle B_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^B0^J\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^B0^J\rangle\langle B_0|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{I_9,J_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,I_7,J_{14})\rangle =$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^B 0^J\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^B 0^J\rangle\langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^B 0^J\rangle\langle B_0|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^B 0^J\rangle\langle B_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^B|\hat{g}|0^I 0^J\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^B|\hat{g}|0^I 0^J\rangle\langle B_0|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{I_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,I_{10},J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^B 0^J\rangle\langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^B|\hat{g}|1^I 0^J\rangle\langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^B|\hat{g}|1^I 0^J\rangle\langle B_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^B 0^J\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_0|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1}t_{I_{10},J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,I_8,J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^B 0^J\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^B 0^J\rangle\langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_0|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^B|\hat{g}|1^I 0^J\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^B|\hat{g}|1^I 0^J\rangle\langle B_0|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{I_8,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_2,I_9,J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_1,B_2}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_2}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_3,I_9,J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_3}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_3}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_3}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_3}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_3}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_3}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_3}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_3}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_3}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_3}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_3}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_3}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_2,I_7,J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1,B_2}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1,B_2}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1,B_2}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1,B_2}t_{I_7,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1,B_2}t_{I_7,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1,B_2}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_2}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_2}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_2}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_2}t_{I_7,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_2}t_{I_7,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_2}t_{I_7,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_3,I_7,J_{14})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1,B_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1,B_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1,B_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1,B_3}t_{I_7,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1,B_3}t_{I_7,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1,B_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_3}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_3}t_{I_7,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^I0^J\rangle\langle B_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_3}t_{I_7,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J0^I\rangle\langle B_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle t_{A_1}t_{B_3}t_{I_7,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_2,I_{10},J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_2}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_2}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I0^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_2}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_2}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_2}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_2}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_2}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_2}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I0^J\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_2}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J1^I\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_2}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_2}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_2}t_{I_{10},J_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_3,I_{10},J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_3}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I0^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_3}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J1^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,B_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_3}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I0^J\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_3}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|0^J1^I\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_3}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B0^J\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_3}t_{I_{10},J_{12}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_2, I_8, J_{14})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_2}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_2}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_2}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_2}t_{I_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^B|\hat{g}|1^I 0^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_2}t_{I_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^B|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_2}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^B|\hat{g}|1^I 0^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^B|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_8,J_{14}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_3, I_8, J_{14})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_3}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_3}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_3}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_3}t_{I_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^B|\hat{g}|1^I 0^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_3}t_{I_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^B|\hat{g}|0^J 1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1,B_3}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^B 0^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^B|\hat{g}|1^I 0^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^B|\hat{g}|0^J 1^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_8,J_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, I_9, J_{11}) \rangle =$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^B 1^J \rangle \langle B_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle t_{A_1} t_{I_9, J_{11}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle t_{A_1} t_{I_9, J_{11}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^B 0^B | \hat{g} | 0^I 1^J \rangle \langle B_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle t_{A_1} t_{I_9, J_{11}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^B 1^B | \hat{g} | 0^I 1^J \rangle \langle B_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle t_{A_1} t_{I_9, J_{11}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^B 1^J \rangle \langle B_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle t_{A_1} t_{I_9, J_{11}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle t_{A_1} t_{I_9, J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, I_7, J_{13}) \rangle =$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^B 1^J \rangle \langle B_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle t_{A_1} t_{I_7, J_{13}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^B 1^J \rangle \langle B_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle t_{A_1} t_{I_7, J_{13}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle t_{A_1} t_{I_7, J_{13}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle t_{A_1} t_{I_7, J_{13}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^B 0^B | \hat{g} | 0^I 1^J \rangle \langle B_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle t_{A_1} t_{I_7, J_{13}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^B 1^B | \hat{g} | 0^I 1^J \rangle \langle B_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle t_{A_1} t_{I_7, J_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, I_{10}, J_{11}) \rangle =$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^B 1^J \rangle \langle B_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle t_{A_1} t_{I_{10}, J_{11}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 1^I | \hat{g} | 1^B 1^J \rangle \langle B_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle t_{A_1} t_{I_{10}, J_{11}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 0^B 0^B | \hat{g} | 1^I 1^J \rangle \langle B_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle t_{A_1} t_{I_{10}, J_{11}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^B 1^B | \hat{g} | 1^I 1^J \rangle \langle B_0 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle t_{A_1} t_{I_{10}, J_{11}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^B 1^J \rangle \langle B_0 | \hat{0}_\beta^+ \hat{0}_\beta^- | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle t_{A_1} t_{I_{10}, J_{11}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 1^I | \hat{g} | 1^B 1^J \rangle \langle B_0 | \hat{1}_\beta^+ \hat{1}_\beta^- | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle t_{A_1} t_{I_{10}, J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, I_8, J_{13}) \rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^B1^J\rangle\langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_0|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^B1^J\rangle\langle B_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^B|\hat{g}|1^I1^J\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^B|\hat{g}|1^I1^J\rangle\langle B_0|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{I_8,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_2,I_9,J_{11})\rangle=$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_2}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_2}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|1^J0^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|1^J0^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_3,I_9,J_{11})\rangle=$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_3}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_3}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|0^I1^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_3}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|1^J0^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_3}t_{I_9,J_{11}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_3}t_{I_9,J_{11}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle t_{A_1,B_3} t_{I_9,J_{11}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle t_{A_1} t_{B_3} t_{I_9,J_{11}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle t_{A_1} t_{B_3} t_{I_9,J_{11}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^B | \hat{g} | 0^I 1^J \rangle \langle B_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle t_{A_1} t_{B_3} t_{I_9,J_{11}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^B | \hat{g} | 1^J 0^I \rangle \langle B_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle t_{A_1} t_{B_3} t_{I_9,J_{11}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle t_{A_1} t_{B_3} t_{I_9,J_{11}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle t_{A_1} t_{B_3} t_{I_9,J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_2, I_7, J_{13}) \rangle =$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_2 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1,B_2} t_{I_7,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1,B_2} t_{I_7,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_2 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1,B_2} t_{I_7,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_2 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1,B_2} t_{I_7,J_{13}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^B | \hat{g} | 0^I 1^J \rangle \langle B_2 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1,B_2} t_{I_7,J_{13}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^B | \hat{g} | 1^J 0^I \rangle \langle B_2 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1,B_2} t_{I_7,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_2 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1} t_{B_2} t_{I_7,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1} t_{B_2} t_{I_7,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_2 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1} t_{B_2} t_{I_7,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_2 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1} t_{B_2} t_{I_7,J_{13}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^B | \hat{g} | 0^I 1^J \rangle \langle B_2 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1} t_{B_2} t_{I_7,J_{13}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^B | \hat{g} | 1^J 0^I \rangle \langle B_2 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1} t_{B_2} t_{I_7,J_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_3, I_7, J_{13}) \rangle =$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1,B_3} t_{I_7,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1,B_3} t_{I_7,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1,B_3} t_{I_7,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_1,B_3} t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|0^I1^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_3}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|1^J0^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_3}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|0^I1^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|1^J0^I\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_3}t_{I_7,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_2,I_{10},J_{11})\rangle =$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_2}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|1^I1^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_2}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|1^J1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|1^I1^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|1^J1^I\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_2}t_{I_{10},J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_3,I_{10},J_{11})\rangle =$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_3}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_3}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^B|\hat{g}|1^I1^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_3}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_3}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_3}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,B_3}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I1^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J1^I\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_3}t_{I_{10},J_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_2,I_8,J_{13})\rangle=$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_2}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I1^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_2}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^I1^J\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^B|\hat{g}|1^J1^I\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_2}t_{I_8,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_3,I_8,J_{13})\rangle=$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_3}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^B1^J\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,B_3}t_{I_8,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_8 | \hat{1}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle t_{A_1,B_3} t_{I_8,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_8 | \hat{1}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle t_{A_1,B_3} t_{I_8,J_{13}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^B | \hat{g} | 1^I 1^J \rangle \langle B_3 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_8 | \hat{1}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle t_{A_1,B_3} t_{I_8,J_{13}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^B | \hat{g} | 1^J 1^I \rangle \langle B_3 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_8 | \hat{1}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle t_{A_1,B_3} t_{I_8,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_8 | \hat{1}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle t_{A_1} t_{B_3} t_{I_8,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | B_1 \rangle \langle I_8 | \hat{1}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle t_{A_1} t_{B_3} t_{I_8,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_8 | \hat{1}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle t_{A_1} t_{B_3} t_{I_8,J_{13}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 1^B 1^J \rangle \langle B_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_1 \rangle \langle I_8 | \hat{1}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle t_{A_1} t_{B_3} t_{I_8,J_{13}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^B | \hat{g} | 1^I 1^J \rangle \langle B_3 | \hat{0}^+_\beta \hat{1}^-_\beta | B_1 \rangle \langle I_8 | \hat{1}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle t_{A_1} t_{B_3} t_{I_8,J_{13}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^B | \hat{g} | 1^J 1^I \rangle \langle B_3 | \hat{1}^+_\beta \hat{0}^-_\beta | B_1 \rangle \langle I_8 | \hat{1}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle t_{A_1} t_{B_3} t_{I_8,J_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{12}, I_9, J_1) \rangle =$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 0^J | \hat{g} | 0^I 0^J \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{A_1,J_1} t_{B_{12},I_9}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 0^J | \hat{g} | 0^I 0^J \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle t_{A_1,J_1} t_{B_{12},I_9}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^J | \hat{g} | 0^I 1^J \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{A_1,J_1} t_{B_{12},I_9}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^J | \hat{g} | 0^I 1^J \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle t_{A_1,J_1} t_{B_{12},I_9}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^J 0^J \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{A_1,J_1} t_{B_{12},I_9}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^J 1^J \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{A_1,J_1} t_{B_{12},I_9}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 0^J | \hat{g} | 0^I 0^J \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{A_1} t_{B_{12},I_9} t_{J_1}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 0^J | \hat{g} | 0^I 0^J \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle t_{A_1} t_{B_{12},I_9} t_{J_1}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^J | \hat{g} | 0^I 1^J \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{A_1} t_{B_{12},I_9} t_{J_1}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^J | \hat{g} | 0^I 1^J \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{1}^+_\beta \hat{1}^-_\beta | J_0 \rangle t_{A_1} t_{B_{12},I_9} t_{J_1}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^J 0^J \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | J_0 \rangle t_{A_1} t_{B_{12},I_9} t_{J_1}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^J 1^J \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_1 | \hat{1}^+_\alpha \hat{1}^-_\alpha | J_0 \rangle t_{A_1} t_{B_{12},I_9} t_{J_1}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{14}, I_7, J_1) \rangle =$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 0^J | \hat{g} | 0^I 0^J \rangle \langle B_{14} | \hat{0}^+_\beta | B_1 \rangle \langle I_7 | \hat{0}^-_\beta | I_0 \rangle \langle J_1 | \hat{0}^+_\beta \hat{0}^-_\beta | J_0 \rangle t_{A_1,J_1} t_{B_{14},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{14},I_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{14},I_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{14},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{14},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{14},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{12},I_9,J_2)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{12},I_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{12},I_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{12},I_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{12},I_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{12},I_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{12},I_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{12},I_9,J_3)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{12},I_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{12},I_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{12},I_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{12},I_9}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{12},I_9}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{12},I_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{14},I_7,J_2)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{14},I_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{14},I_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{14},I_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{14},I_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{14},I_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{14},I_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_7, J_3)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{14},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{14},I_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{14},I_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{14},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{14},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{14},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{10}, J_1)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{12},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{12},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{14},I_8,J_1)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{14},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{14},I_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{14},I_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{14},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{14},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{14},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_{10},J_2)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{12},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{12},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{10}, J_3)\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3} t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3} t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3} t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3} t_{B_{12},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|1^J 0^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3} t_{B_{12},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|0^J 1^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3} t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_3}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_3}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_3}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|1^J 0^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|0^J 1^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_8, J_2)\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_2} t_{B_{14},I_8}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_2} t_{B_{14},I_8}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|1^J 0^J\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_2} t_{B_{14},I_8}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|0^J 1^J\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_2} t_{B_{14},I_8}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2} t_{B_{14},I_8}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2} t_{B_{14},I_8}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_{14},I_8} t_{J_2}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1} t_{B_{14},I_8} t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|1^J 0^J\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_{14},I_8} t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|0^J 1^J\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1} t_{B_{14},I_8} t_{J_2}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1} t_{B_{14},I_8} t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_2}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{14},I_8,J_3)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{14},I_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{14},I_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{14},I_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{14},I_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{14},I_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{14},I_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_3}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_9,J_1)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{11},I_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{11},I_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{11},I_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{11},I_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{11},I_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{11},I_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_1}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_7,J_1)\rangle =$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_{13},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_{13},I_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_{13},I_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_{13},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_{13},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_{13},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_1}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_9,J_2)\rangle =$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_{11},I_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_{11},I_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_{11},I_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_{11},I_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J0^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_{11},I_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_{11},I_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^J0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_2}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_9,J_3)\rangle =$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{11},I_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{11},I_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{11},I_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{11},I_9}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^J0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{11},I_9}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{11},I_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^J0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_3}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_7,J_2)\rangle =$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{13},I_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{13},I_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^J0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{13},I_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{13},I_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{13},I_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{13},I_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_7,J_3)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{13},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{13},I_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{13},I_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{13},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{13},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{13},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_{10},J_1)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{11},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{11},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{11},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{11},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{11},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{11},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|0^J0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^J1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{13},I_8,J_1)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{13},I_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{13},I_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|0^J0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{13},I_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^J1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{13},I_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{13},I_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{13},I_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|0^J0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^J1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{11},I_{10},J_2)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{11},I_{10}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{11},I_{10}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{11},I_{10}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{11},I_{10}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^J0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{11},I_{10}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|0^J1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{11},I_{10}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{2}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{2}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{2}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{2}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{2}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{2}}$$

$$\langle (A_{1},B_{1})|\hat{H}|(A_{1},B_{11},I_{10},J_{3})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},J_{3}}t_{B_{11},I_{10}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{1},J_{3}}t_{B_{11},I_{10}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},J_{3}}t_{B_{11},I_{10}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{1},J_{3}}t_{B_{11},I_{10}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},J_{3}}t_{B_{11},I_{10}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},J_{3}}t_{B_{11},I_{10}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{3}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{3}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{3}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{3}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{3}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{3}}$$

$$\langle (A_{1},B_{1})|\hat{H}|(A_{1},B_{13},I_{8},J_{2})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{13}|\hat{1}_{\beta}^{+}|B_{1}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{1},J_{2}}t_{B_{13},I_{8}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{13}|\hat{1}_{\beta}^{+}|B_{1}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{1},J_{2}}t_{B_{13},I_{8}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{13}|\hat{1}_{\beta}^{+}|B_{1}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{1},J_{2}}t_{B_{13},I_{8}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{13}|\hat{1}_{\beta}^{+}|B_{1}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{1},J_{2}}t_{B_{13},I_{8}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{13}|\hat{1}_{\beta}^{+}|B_{1}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},J_{2}}t_{B_{13},I_{8}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^J|\hat{g}|1^I 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_{13},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^J|\hat{g}|1^I 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^J|\hat{g}|1^I 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|1^J 0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^J 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^J|\hat{g}|1^I 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^J|\hat{g}|1^I 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{13},I_8,J_3)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^J|\hat{g}|1^I 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_{13},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^J|\hat{g}|1^I 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_{13},I_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|1^J 0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_{13},I_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^J 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_{13},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^J|\hat{g}|1^I 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_{13},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^J|\hat{g}|1^I 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_{13},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^J|\hat{g}|1^I 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^J|\hat{g}|1^I 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|1^J 0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^J 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^J|\hat{g}|1^I 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^J|\hat{g}|1^I 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_9,I_1,J_{12})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|0^I 0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_1}t_{B_9,J_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|1^I 0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_1}t_{B_9,J_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|0^J 0^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_1}t_{B_9,J_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_1}t_{B_9,J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^J 0^I \rangle \langle B_9 | \hat{0}_\alpha^- | B_1 \rangle \langle I_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1,I_1} t_{B_9,J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^J 1^I \rangle \langle B_9 | \hat{0}_\alpha^- | B_1 \rangle \langle I_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1,I_1} t_{B_9,J_{12}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^I 0^J \rangle \langle B_9 | \hat{0}_\alpha^- | B_1 \rangle \langle I_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_9,J_{12}} t_{I_1}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 1^I 0^J \rangle \langle B_9 | \hat{0}_\alpha^- | B_1 \rangle \langle I_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_9,J_{12}} t_{I_1}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^J 0^I \rangle \langle B_9 | \hat{0}_\alpha^- | B_1 \rangle \langle I_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_9,J_{12}} t_{I_1}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^J 1^I \rangle \langle B_9 | \hat{0}_\alpha^- | B_1 \rangle \langle I_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_9,J_{12}} t_{I_1}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^J 0^I \rangle \langle B_9 | \hat{0}_\alpha^- | B_1 \rangle \langle I_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_9,J_{12}} t_{I_1}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^J 1^I \rangle \langle B_9 | \hat{0}_\alpha^- | B_1 \rangle \langle I_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1} t_{B_9,J_{12}} t_{I_1}$$

$\langle (A_1, B_1) | \hat{H} | (A_1, B_7, I_1, J_{14}) \rangle =$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^I 0^J \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle t_{A_1,I_1} t_{B_7,J_{14}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 1^I 0^J \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle t_{A_1,I_1} t_{B_7,J_{14}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^J 0^I \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle t_{A_1,I_1} t_{B_7,J_{14}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^J 0^I \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle t_{A_1,I_1} t_{B_7,J_{14}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^J 1^I \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle t_{A_1,I_1} t_{B_7,J_{14}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^J 1^I \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle t_{A_1,I_1} t_{B_7,J_{14}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^I 0^J \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle t_{A_1} t_{B_7,J_{14}} t_{I_1}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 1^I 0^J \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle t_{A_1} t_{B_7,J_{14}} t_{I_1}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^J 0^I \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_1 | \hat{0}_\beta^+ \hat{0}_\beta^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle t_{A_1} t_{B_7,J_{14}} t_{I_1}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^J 0^I \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle t_{A_1} t_{B_7,J_{14}} t_{I_1}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^J 1^I \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_1 | \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle t_{A_1} t_{B_7,J_{14}} t_{I_1}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^J 1^I \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_1 | \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle t_{A_1} t_{B_7,J_{14}} t_{I_1}$$

$\langle (A_1, B_1) | \hat{H} | (A_1, B_9, I_2, J_{12}) \rangle =$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 1^I | \hat{g} | 0^I 0^J \rangle \langle B_9 | \hat{0}_\alpha^- | B_1 \rangle \langle I_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1,I_2} t_{B_9,J_{12}}$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 1^I 0^J \rangle \langle B_9 | \hat{0}_\alpha^- | B_1 \rangle \langle I_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1,I_2} t_{B_9,J_{12}}$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^B 0^I | \hat{g} | 0^J 1^I \rangle \langle B_9 | \hat{0}_\alpha^- | B_1 \rangle \langle I_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle t_{A_1,I_2} t_{B_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^I0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^I0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_2}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_3,J_{12})\rangle=$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^I0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^I0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^I0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^I0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_3}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_2,J_{14})\rangle=$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^I0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1,I_2}t_{B_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^I0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1,I_2}t_{B_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_2|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1,I_2}t_{B_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_2|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1,I_2}t_{B_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_2|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1,I_2}t_{B_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_2|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1,I_2}t_{B_7,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^I0^J\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_2|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^I0^J\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_2|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_2|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_2|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_2|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_2|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_7,I_3,J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^I0^J\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_3|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1,I_3}t_{B_7,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^I0^J\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_3|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1,I_3}t_{B_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_3|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1,I_3}t_{B_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1,I_3}t_{B_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_3|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1,I_3}t_{B_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_3|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1,I_3}t_{B_7,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^I0^J\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_3|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^I0^J\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_3|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_3|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_3|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_7|\hat{0}_{\beta}^{-}|B_1\rangle\langle I_3|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{10},I_1,J_{12})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^I0^J\rangle\langle B_{10}|\hat{1}_{\alpha}^{-}|B_1\rangle\langle I_1|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle t_{A_1,I_1}t_{B_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^I0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_1}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_1}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_1}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_1}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_1}t_{B_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^I0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^I0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_8,I_1,J_{14})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^I0^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1,I_1}t_{B_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^I0^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1,I_1}t_{B_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1,I_1}t_{B_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1,I_1}t_{B_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1,I_1}t_{B_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1,I_1}t_{B_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^I0^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^I0^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{10},I_2,J_{12})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_{10},J_{12}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_{10},J_{12}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_2}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_2}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_3,J_{12})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_{10},J_{12}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_{10},J_{12}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_2, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1,I_2}t_{B_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_2|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1,I_2}t_{B_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1,I_2}t_{B_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1,I_2}t_{B_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_2|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1,I_2}t_{B_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1,I_2}t_{B_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_2|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_2|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_3, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_3|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1,I_3}t_{B_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_3|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1,I_3}t_{B_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_3|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1,I_3}t_{B_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1,I_3}t_{B_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_3|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1,I_3}t_{B_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1,I_3}t_{B_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_3|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_3|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_3|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_3|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_8|\hat{1}_{\beta}^-|B_1\rangle\langle I_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_1, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|0^I 1^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_1} t_{B_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^B 1^I|\hat{g}|1^I 1^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_1} t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_1} t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_1} t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_1} t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_1} t_{B_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|0^I 1^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1} t_{B_9,J_{11}} t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^B 1^I|\hat{g}|1^I 1^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1} t_{B_9,J_{11}} t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1} t_{B_9,J_{11}} t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1} t_{B_9,J_{11}} t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1} t_{B_9,J_{11}} t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1} t_{B_9,J_{11}} t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_1, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|0^I 1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_1} t_{B_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^B 1^I|\hat{g}|1^I 1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_1} t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_1} t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_1} t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_1} t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_1} t_{B_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|0^I 1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1} t_{B_7,J_{13}} t_{I_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^B 1^I|\hat{g}|1^I 1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1} t_{B_7,J_{13}} t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1} t_{B_7,J_{13}} t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1} t_{B_7,J_{13}} t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1} t_{B_7,J_{13}} t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1} t_{B_7,J_{13}} t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_2, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,I_2}t_{B_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_3, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1,I_3}t_{B_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_2,J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1,I_2}t_{B_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1,I_2}t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1,I_2}t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1,I_2}t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1,I_2}t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1,I_2}t_{B_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_3,J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1,I_3}t_{B_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1,I_3}t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1,I_3}t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1,I_3}t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1,I_3}t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1,I_3}t_{B_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_3}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_{10},I_1,J_{11})\rangle =$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^I 1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^I 1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_1}t_{B_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^I 1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_1}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^I 1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_1}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_8,I_1,J_{13})\rangle =$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_1}t_{B_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_1}t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_1}t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_1}t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_1}t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^J 1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_1}t_{B_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_1}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^I|\hat{g}|1^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^J 0^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J0^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_1}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_2,J_{11})\rangle =$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_2}t_{B_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_2}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_3,J_{11})\rangle =$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1,I_3}t_{B_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_3}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_8,I_2,J_{13})\rangle =$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_2}t_{B_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_2}t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_2}t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_2}t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_2}t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_2}t_{B_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_2}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_8,I_3,J_{13})\rangle =$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_3}t_{B_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_3}t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_3}t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_3}t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_3}t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1,I_3}t_{B_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}^-_{\bar\beta}|B_1\rangle\langle I_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_8|\hat{1}^-_{\bar\beta}|B_1\rangle\langle I_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_8|\hat{1}^-_{\bar\beta}|B_1\rangle\langle I_3|\hat{0}^+_{\bar\beta}\hat{1}^-_{\bar\alpha}|I_0\rangle\langle J_{13}|\hat{1}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_8|\hat{1}^-_{\bar\beta}|B_1\rangle\langle I_3|\hat{1}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_8|\hat{1}^-_{\bar\beta}|B_1\rangle\langle I_3|\hat{1}^+_{\bar\alpha}\hat{0}^-_{\bar\alpha}|I_0\rangle\langle J_{13}|\hat{1}^+_{\bar\beta}|J_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_9,I_{12},J_1)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_9|\hat{0}^-_{\bar\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\bar\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\bar\alpha}\hat{0}^-_{\bar\alpha}|J_0\rangle t_{A_1,J_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_9|\hat{0}^-_{\bar\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\bar\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle t_{A_1,J_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}^-_{\bar\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\bar\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\bar\alpha}\hat{1}^-_{\bar\alpha}|J_0\rangle t_{A_1,J_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}^-_{\bar\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\bar\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1,J_1}t_{B_9,I_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_9|\hat{0}^-_{\bar\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\bar\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\bar\alpha}\hat{0}^-_{\bar\alpha}|J_0\rangle t_{A_1,J_1}t_{B_9,I_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J1^J\rangle\langle B_9|\hat{0}^-_{\bar\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\bar\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\bar\alpha}\hat{1}^-_{\bar\alpha}|J_0\rangle t_{A_1,J_1}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_9|\hat{0}^-_{\bar\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\bar\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\bar\alpha}\hat{0}^-_{\bar\alpha}|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_9|\hat{0}^-_{\bar\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\bar\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}^-_{\bar\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\bar\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\bar\alpha}\hat{1}^-_{\bar\alpha}|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}^-_{\bar\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\bar\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_9|\hat{0}^-_{\bar\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\bar\alpha}|I_0\rangle\langle J_1|\hat{0}^+_{\bar\alpha}\hat{0}^-_{\bar\alpha}|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J1^J\rangle\langle B_9|\hat{0}^-_{\bar\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\bar\alpha}|I_0\rangle\langle J_1|\hat{1}^+_{\bar\alpha}\hat{1}^-_{\bar\alpha}|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_7,I_{14},J_1)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_7|\hat{0}^-_{\bar\beta}|B_1\rangle\langle I_{14}|\hat{0}^+_{\bar\beta}|I_0\rangle\langle J_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle t_{A_1,J_1}t_{B_7,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}^-_{\bar\beta}|B_1\rangle\langle I_{14}|\hat{0}^+_{\bar\beta}|I_0\rangle\langle J_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1,J_1}t_{B_7,I_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_7|\hat{0}^-_{\bar\beta}|B_1\rangle\langle I_{14}|\hat{0}^+_{\bar\beta}|I_0\rangle\langle J_1|\hat{0}^+_{\bar\beta}\hat{0}^-_{\bar\beta}|J_0\rangle t_{A_1,J_1}t_{B_7,I_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J1^J\rangle\langle B_7|\hat{0}^-_{\bar\beta}|B_1\rangle\langle I_{14}|\hat{0}^+_{\bar\beta}|I_0\rangle\langle J_1|\hat{1}^+_{\bar\beta}\hat{1}^-_{\bar\beta}|J_0\rangle t_{A_1,J_1}t_{B_7,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_7|\hat{0}^-_{\bar\beta}|B_1\rangle\langle I_{14}|\hat{0}^+_{\bar\beta}|I_0\rangle\langle J_1|\hat{0}^+_{\bar\alpha}\hat{0}^-_{\bar\alpha}|J_0\rangle t_{A_1,J_1}t_{B_7,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}^-_{\bar\beta}|B_1\rangle\langle I_{14}|\hat{0}^+_{\bar\beta}|I_0\rangle\langle J_1|\hat{1}^+_{\bar\alpha}\hat{1}^-_{\bar\alpha}|J_0\rangle t_{A_1,J_1}t_{B_7,I_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_{12},J_2)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_9,I_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_9,I_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_9,I_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_9,I_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_9,I_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_9,I_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_{12},J_3)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_9,I_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_9,I_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_9,I_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_9,I_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_9,I_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_9,I_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_{14},J_2)\rangle=$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_7,I_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_7,I_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_7,I_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_7,I_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_7,I_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_7,I_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_{14},J_3)\rangle=$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_7,I_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_7,I_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_7,I_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_7,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_7,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_7,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_7|\hat{0}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_3|\hat{0}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_7|\hat{0}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_3|\hat{1}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_7|\hat{0}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{10},I_{12},J_1)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle t_{A_1,J_1}t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle t_{A_1,J_1}t_{B_{10},I_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_{10},I_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_8,I_{14},J_1)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle t_{A_1,J_1}t_{B_8,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_1|\hat{1}_{\bar{\beta}}^+\hat{1}_{\bar{\beta}}^-|J_0\rangle t_{A_1,J_1}t_{B_8,I_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^J\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar{\beta}}^+|I_0\rangle\langle J_1|\hat{0}_{\bar{\beta}}^+\hat{0}_{\bar{\beta}}^-|J_0\rangle t_{A_1,J_1}t_{B_8,I_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_8,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_8,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_8,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_1}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_1}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|0^I1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{10},I_{12},J_2)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_2}t_{B_{10},I_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{10},I_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J0^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_2}t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|0^J1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B0^I|\hat{g}|1^J0^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{10},I_{12},J_3)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|0^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_{10},I_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1,J_3} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1,J_3} t_{B_{10},I_{12}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 0^J 1^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1,J_3} t_{B_{10},I_{12}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 1^J 0^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1,J_3} t_{B_{10},I_{12}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_{10},I_{12}} t_{J_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_{10},I_{12}} t_{J_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1} t_{B_{10},I_{12}} t_{J_3}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_3 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_{10},I_{12}} t_{J_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 0^J 1^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_3 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_{10},I_{12}} t_{J_3}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 1^J 0^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_3 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1} t_{B_{10},I_{12}} t_{J_3}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_8, I_{14}, J_2) \rangle =$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1,J_2} t_{B_8,I_{14}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1,J_2} t_{B_8,I_{14}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 0^J 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1,J_2} t_{B_8,I_{14}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 1^J 0^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1,J_2} t_{B_8,I_{14}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1,J_2} t_{B_8,I_{14}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1,J_2} t_{B_8,I_{14}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_8,I_{14}} t_{J_2}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_8,I_{14}} t_{J_2}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 0^J 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_2 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1} t_{B_8,I_{14}} t_{J_2}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^B 0^I | \hat{g} | 1^J 0^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_2 | \hat{1}_\beta^+ \hat{0}_\beta^- | J_0 \rangle t_{A_1} t_{B_8,I_{14}} t_{J_2}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_2 | \hat{0}_\alpha^+ \hat{1}_\alpha^- | J_0 \rangle t_{A_1} t_{B_8,I_{14}} t_{J_2}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_2 | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_1} t_{B_8,I_{14}} t_{J_2}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_8, I_{14}, J_3) \rangle =$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^B 0^J | \hat{g} | 0^I 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_3 | \hat{0}_\beta^+ \hat{1}_\beta^- | J_0 \rangle t_{A_1,J_3} t_{B_8,I_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_8,I_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_8,I_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^J 0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_8,I_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_8,I_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_8,I_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|0^J 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_3}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 0^I|\hat{g}|1^J 0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_3}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B 0^J|\hat{g}|0^I 1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_9,I_{11},J_1)\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|1^I 0^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_9,I_{11}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|1^I 0^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_9,I_{11}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^J|\hat{g}|1^I 1^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_9,I_{11}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^J|\hat{g}|1^I 1^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_9,I_{11}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^J 0^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_9,I_{11}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^J 1^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_9,I_{11}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|1^I 0^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^J|\hat{g}|1^I 0^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^J|\hat{g}|1^I 1^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_1}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^J|\hat{g}|1^I 1^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^J 0^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_1}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|1^J 1^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_7,I_{13},J_1)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_7,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|1^I1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_7,I_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_7,I_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_1}t_{B_7,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_7,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|1^I1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_1}t_{B_7,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|1^I1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B1^J|\hat{g}|1^I1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_{11},J_2)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_9,I_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_9,I_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_9,I_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_9,I_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_9,I_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_9,I_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_{11}, J_3)\rangle =$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_3|\hat{0}_\alpha^+ \hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3} t_{B_9,I_{11}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_3|\hat{0}_\beta^+ \hat{1}_\beta^-|J_0\rangle t_{A_1,J_3} t_{B_9,I_{11}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_3|\hat{1}_\alpha^+ \hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3} t_{B_9,I_{11}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_3|\hat{1}_\beta^+ \hat{0}_\beta^-|J_0\rangle t_{A_1,J_3} t_{B_9,I_{11}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|0^J 1^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_3|\hat{0}_\alpha^+ \hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3} t_{B_9,I_{11}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|1^J 0^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_3|\hat{1}_\alpha^+ \hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3} t_{B_9,I_{11}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_3|\hat{0}_\alpha^+ \hat{1}_\alpha^-|J_0\rangle t_{A_1} t_{B_9,I_{11}} t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_3|\hat{0}_\beta^+ \hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_9,I_{11}} t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_3|\hat{1}_\alpha^+ \hat{0}_\alpha^-|J_0\rangle t_{A_1} t_{B_9,I_{11}} t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_3|\hat{1}_\beta^+ \hat{0}_\beta^-|J_0\rangle t_{A_1} t_{B_9,I_{11}} t_{J_3}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|0^J 1^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_3|\hat{0}_\alpha^+ \hat{1}_\alpha^-|J_0\rangle t_{A_1} t_{B_9,I_{11}} t_{J_3}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|1^J 0^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_3|\hat{1}_\alpha^+ \hat{0}_\alpha^-|J_0\rangle t_{A_1} t_{B_9,I_{11}} t_{J_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_{13}, J_2)\rangle =$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_2|\hat{0}_\beta^+ \hat{1}_\beta^-|J_0\rangle t_{A_1,J_2} t_{B_7,I_{13}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_2|\hat{1}_\beta^+ \hat{0}_\beta^-|J_0\rangle t_{A_1,J_2} t_{B_7,I_{13}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|0^J 1^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_2|\hat{0}_\beta^+ \hat{1}_\beta^-|J_0\rangle t_{A_1,J_2} t_{B_7,I_{13}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|1^J 0^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_2|\hat{1}_\beta^+ \hat{0}_\beta^-|J_0\rangle t_{A_1,J_2} t_{B_7,I_{13}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_2|\hat{0}_\alpha^+ \hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2} t_{B_7,I_{13}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_2|\hat{1}_\alpha^+ \hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2} t_{B_7,I_{13}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_2|\hat{0}_\beta^+ \hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_7,I_{13}} t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_2|\hat{1}_\beta^+ \hat{0}_\beta^-|J_0\rangle t_{A_1} t_{B_7,I_{13}} t_{J_2}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|0^J 1^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_2|\hat{0}_\beta^+ \hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_7,I_{13}} t_{J_2}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^B 1^I|\hat{g}|1^J 0^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_2|\hat{1}_\beta^+ \hat{0}_\beta^-|J_0\rangle t_{A_1} t_{B_7,I_{13}} t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_2|\hat{0}_\alpha^+ \hat{1}_\alpha^-|J_0\rangle t_{A_1} t_{B_7,I_{13}} t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_2|\hat{1}_\alpha^+ \hat{0}_\alpha^-|J_0\rangle t_{A_1} t_{B_7,I_{13}} t_{J_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_{13},J_3)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_7,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_7,I_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_7,I_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J0^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_3}t_{B_7,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_7,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_3}t_{B_7,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|0^J1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^B1^I|\hat{g}|1^J0^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{11},J_1)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{10},I_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{10},I_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{10},I_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1,J_1}t_{B_{10},I_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J0^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{10},I_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1,J_1}t_{B_{10},I_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I0^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B1^J|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J0^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{13}, J_1)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^J|\hat{g}|1^I 0^J\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_1} t_{B_8,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 1^J|\hat{g}|1^I 1^J\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_1} t_{B_8,I_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 1^I|\hat{g}|0^J 0^J\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_1} t_{B_8,I_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 1^I|\hat{g}|1^J 1^J\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_1} t_{B_8,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^J|\hat{g}|1^I 0^J\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_1} t_{B_8,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 1^J|\hat{g}|1^I 1^J\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_1} t_{B_8,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^J|\hat{g}|1^I 0^J\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1} t_{B_8,I_{13}} t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 1^J|\hat{g}|1^I 1^J\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_8,I_{13}} t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 1^I|\hat{g}|0^J 0^J\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_1|\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1} t_{B_8,I_{13}} t_{J_1}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 1^I|\hat{g}|1^J 1^J\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_1|\hat{1}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_8,I_{13}} t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^J|\hat{g}|1^I 0^J\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1} t_{B_8,I_{13}} t_{J_1}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 1^J|\hat{g}|1^I 1^J\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1} t_{B_8,I_{13}} t_{J_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{11}, J_2)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2} t_{B_{10},I_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_2} t_{B_{10},I_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2} t_{B_{10},I_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_2} t_{B_{10},I_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 1^I|\hat{g}|0^J 1^J\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2} t_{B_{10},I_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 1^I|\hat{g}|1^J 0^J\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2} t_{B_{10},I_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1} t_{B_{10},I_{11}} t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1} t_{B_{10},I_{11}} t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1} t_{B_{10},I_{11}} t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J \langle 1^B 0^J|\hat{g}|1^I 1^J\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1} t_{B_{10},I_{11}} t_{J_2}$$

$$+\frac{1}{4}\sum_I\sum_J \langle 1^B 1^I|\hat{g}|0^J 1^J\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1} t_{B_{10},I_{11}} t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{11},J_3)\rangle=$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_{10},I_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_{10},I_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_3}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_3}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_{13},J_2)\rangle=$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_8,I_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_8,I_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_8,I_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J0^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_2}t_{B_8,I_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_8,I_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_2}t_{B_8,I_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_2}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_2}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J0^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_2}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_2}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_{13},J_3)\rangle =$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_8,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_8,I_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_8,I_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J0^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1,J_3}t_{B_8,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_8,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1,J_3}t_{B_8,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|0^J1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\beta^+\hat{1}_\beta^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_3}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^B1^I|\hat{g}|1^J0^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_3}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^B0^J|\hat{g}|1^I1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_3}$$

$\langle(A_1,B_1)|\hat{H}|(B_{12},I_9)\rangle =$

$$+\frac{1}{2}\sum_I\langle 0^A0^B|\hat{g}|0^A0^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_{12},I_9}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^A0^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_{12},I_9}$$

$$+\frac{-1}{2}\sum_I\langle 0^A0^A|\hat{g}|0^B0^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_{12},I_9}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^A|\hat{g}|0^B0^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_{12},I_9}$$

$$+\frac{1}{2}\sum_I\langle 0^A0^B|\hat{g}|0^A0^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_{12},I_9}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^A0^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{B_{12},I_9}$$

$\langle(A_1,B_1)|\hat{H}|(B_{14},I_7)\rangle =$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{B_{14},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{B_{14},I_7}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{B_{14},I_7}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{B_{14},I_7}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^B 0^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{B_{14},I_7}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^B 0^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{B_{14},I_7}$$

$$\langle (A_1,B_1)|\hat{H}|(B_{12},I_{10})\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{B_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{B_{12},I_{10}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^B 1^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{B_{12},I_{10}}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^B 1^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{B_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{B_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{B_{12},I_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(B_{14},I_8)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_{14},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^B 1^I\rangle\langle A_0|\hat{0}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_{14},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^B 1^I\rangle\langle A_0|\hat{1}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{B_{14},I_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_2,B_{12},I_9)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_2} t_{B_{12},I_9}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_2} t_{B_{12},I_9}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|0^I0^B\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_{12},I_9}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|0^B0^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^A0^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^A0^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_2}t_{B_{12},I_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_3,B_{12},I_9)\rangle =$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^A0^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^A0^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_{12},I_9}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|0^I0^B\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_{12},I_9}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|0^B0^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^A0^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_{12},I_9}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^A0^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_3}t_{B_{12},I_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_2,B_{14},I_7)\rangle =$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^A0^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_{14},I_7}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^A0^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_{14},I_7}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^A0^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_{14},I_7}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^A0^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|0^I0^B\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A1^A|\hat{g}|0^B0^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_2}t_{B_{14},I_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_3,B_{14},I_7)\rangle =$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^A0^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_{14},I_7}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^A0^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_{14},I_7}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^A0^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_{14},I_7}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^A0^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_{14},I_7}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^B\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_{14},I_7}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^B 0^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_3}t_{B_{14},I_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_2,B_{12},I_{10})\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_{12},I_{10}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^B\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_{12},I_{10}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^B 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_{12},I_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_3,B_{12},I_{10})\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_{12},I_{10}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^B\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_{12},I_{10}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^B 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_{12},I_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_2,B_{14},I_8)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_{14},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^B\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_{14},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^B 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_{14},I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_3, B_{14}, I_8)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|A_1\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle t_{A_3} t_{B_{14}, I_8}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|A_1\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle t_{A_3} t_{B_{14}, I_8}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|A_1\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle t_{A_3} t_{B_{14}, I_8}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|A_1\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle t_{A_3} t_{B_{14}, I_8}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^B\rangle\langle A_3|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|A_1\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle t_{A_3} t_{B_{14}, I_8}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^B 1^I\rangle\langle A_3|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|A_1\rangle\langle B_{14}|\hat{0}^+_{\beta}|B_1\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle t_{A_3} t_{B_{14}, I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(B_{11}, I_9)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|A_1\rangle\langle B_{11}|\hat{1}^+_{\alpha}|B_1\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle t_{B_{11}, I_9}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|A_1\rangle\langle B_{11}|\hat{1}^+_{\alpha}|B_1\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle t_{B_{11}, I_9}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^B 0^I\rangle\langle A_0|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|A_1\rangle\langle B_{11}|\hat{1}^+_{\alpha}|B_1\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle t_{B_{11}, I_9}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^B 0^I\rangle\langle A_0|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|A_1\rangle\langle B_{11}|\hat{1}^+_{\alpha}|B_1\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle t_{B_{11}, I_9}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|A_1\rangle\langle B_{11}|\hat{1}^+_{\alpha}|B_1\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle t_{B_{11}, I_9}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}^+_{\beta}\hat{1}^-_{\beta}|A_1\rangle\langle B_{11}|\hat{1}^+_{\alpha}|B_1\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle t_{B_{11}, I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(B_{13}, I_7)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|A_1\rangle\langle B_{13}|\hat{1}^+_{\beta}|B_1\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle t_{B_{13}, I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|A_1\rangle\langle B_{13}|\hat{1}^+_{\beta}|B_1\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle t_{B_{13}, I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}^+_{\beta}\hat{1}^-_{\beta}|A_1\rangle\langle B_{13}|\hat{1}^+_{\beta}|B_1\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle t_{B_{13}, I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|A_1\rangle\langle B_{13}|\hat{1}^+_{\beta}|B_1\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle t_{B_{13}, I_7}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^B 0^I\rangle\langle A_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|A_1\rangle\langle B_{13}|\hat{1}^+_{\beta}|B_1\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle t_{B_{13}, I_7}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^B 0^I\rangle\langle A_0|\hat{1}^+_{\beta}\hat{1}^-_{\beta}|A_1\rangle\langle B_{13}|\hat{1}^+_{\beta}|B_1\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle t_{B_{13}, I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(B_{11}, I_{10})\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 1^I\rangle \langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_{11}, I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 1^I\rangle \langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_{11}, I_{10}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^B 1^I\rangle \langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_{11}, I_{10}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^B 1^I\rangle \langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_{11}, I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 1^I\rangle \langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_{11}, I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 1^I\rangle \langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_{11}, I_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(B_{13}, I_{8})\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 1^I\rangle \langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_{13}, I_8}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 1^I\rangle \langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_{13}, I_8}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 1^I\rangle \langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_{13}, I_8}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 1^I\rangle \langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_{13}, I_8}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^B 1^I\rangle \langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_{13}, I_8}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^B 1^I\rangle \langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_{13}, I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_2, B_{11}, I_{9})\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_2} t_{B_{11}, I_9}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_2} t_{B_{11}, I_9}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^B\rangle \langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_2} t_{B_{11}, I_9}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 0^I\rangle \langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_2} t_{B_{11}, I_9}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_2} t_{B_{11}, I_9}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_2} t_{B_{11}, I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_3, B_{11}, I_{9})\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_3} t_{B_{11}, I_9}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_{11},I_9}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^B\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_{11},I_9}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 0^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_3}t_{B_{11},I_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_2,B_{13},I_7)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_{13},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_{13},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_{13},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_{13},I_7}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^B\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_{13},I_7}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 0^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_2}t_{B_{13},I_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_3,B_{13},I_7)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_{13},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_{13},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_{13},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_{13},I_7}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^B\rangle\langle A_3|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_{13},I_7}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 0^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_3}t_{B_{13},I_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_2,B_{11},I_{10})\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_{11},I_{10}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^B\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_{11},I_{10}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_2}t_{B_{11},I_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_3,B_{11},I_{10})\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_{11},I_{10}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^B\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_{11},I_{10}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_3}t_{B_{11},I_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_2,B_{13},I_8)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_{13},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_{13},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_{13},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_{13},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^B\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_{13},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_2}t_{B_{13},I_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_3,B_{13},I_8)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_{13},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_{13},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_{13},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_{13},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^B\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_3}t_{B_{13},I_8}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 1^I\rangle\langle A_3|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_3}t_{B_{13},I_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},I_9)\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^B 0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_{12},I_9}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^B 0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_{12},I_9}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_{12},I_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},I_7)\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^B 0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_{14},I_7}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^B 0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_{14},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_{14},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_{14},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_{14},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{A_{14},I_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},I_{10})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^B 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_{12},I_{10}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^B 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 0^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 0^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 1^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_{12},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 1^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_{12},I_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, I_8)\rangle =$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^B 1^I\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_{14}, I_8}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^B 1^I\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_{14}, I_8}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 0^B\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle B_0|\hat{0}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_{14}, I_8}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 1^B\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle B_0|\hat{1}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_{14}, I_8}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 0^B\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle B_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_{14}, I_8}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 1^B\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle B_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle t_{A_{14}, I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_2, I_9)\rangle =$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^B 0^I\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_2} t_{A_{12}, I_9}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^B 0^I\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_2} t_{A_{12}, I_9}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_2} t_{A_{12}, I_9}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_2} t_{A_{12}, I_9}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_2} t_{A_{12}, I_9}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_2} t_{A_{12}, I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_3, I_9)\rangle =$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^B 0^I\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_{12}, I_9}$$

$$+ \tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^B 0^I\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_{12}, I_9}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_{12}, I_9}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_{12}, I_9}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_{12}, I_9}$$

$$+ \tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_{12}, I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_2, I_7)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^B 0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_{14},I_7}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^B 0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_{14},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_{14},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_{14},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_{14},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_2}t_{A_{14},I_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_3,I_7)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^B 0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_{14},I_7}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^B 0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_{14},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_{14},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_{14},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_{14},I_7}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_{14},I_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_2,I_{10})\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^B 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_{12},I_{10}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^B 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_{12},I_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_3,I_{10})\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^B 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_{12},I_{10}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^B 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_{12},I_{10}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_{12},I_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_2,I_8)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^B 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_{14},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^B 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_{14},I_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_3,I_8)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^B 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_{14},I_8}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^B 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_{14},I_8}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_{14},I_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},I_9)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^B 0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_{11},I_9}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^B 0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|0^I1^B\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|0^I1^B\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle t_{A_{11},I_9}$$

$\langle(A_1,B_1)|\hat{H}|(A_{13},I_7)\rangle =$

$$+\frac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|0^B0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_{13},I_7}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^B0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_{13},I_7}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^B|\hat{g}|0^I0^B\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_{13},I_7}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|0^I1^B\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_{13},I_7}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^B|\hat{g}|0^I0^B\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_{13},I_7}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|0^I1^B\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle t_{A_{13},I_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},I_{10})\rangle =$

$$+\frac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|0^B1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_{11},I_{10}}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^B1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I0^B\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I0^B\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^I1^B\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_{11},I_{10}}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^I1^B\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle t_{A_{11},I_{10}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{13},I_8)\rangle =$

$$+\frac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|0^B1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_{13},I_8}$$

$$+\frac{-1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^B1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_{13},I_8}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I0^B\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_{13},I_8}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^I1^B\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_{13},I_8}$$

$$+\frac{1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I0^B\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_{13},I_8}$$

$$+\frac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|1^I1^B\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle t_{A_{13},I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_2, I_9)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^B 0^I\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_2} t_{A_{11},I_9}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^B 0^I\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_2} t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_2} t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_2} t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_2} t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_2} t_{A_{11},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_3, I_9)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^B 0^I\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_{11},I_9}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^B 0^I\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_3|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_{11},I_9}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_3|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle t_{B_3} t_{A_{11},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_2, I_7)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^B 0^I\rangle \langle A_{13}|\hat{1}^+_\beta|A_1\rangle \langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_2} t_{A_{13},I_7}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^B 0^I\rangle \langle A_{13}|\hat{1}^+_\beta|A_1\rangle \langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_2} t_{A_{13},I_7}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{13}|\hat{1}^+_\beta|A_1\rangle \langle B_2|\hat{0}^+_\beta \hat{1}^-_\beta|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_2} t_{A_{13},I_7}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{13}|\hat{1}^+_\beta|A_1\rangle \langle B_2|\hat{1}^+_\beta \hat{0}^-_\beta|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_2} t_{A_{13},I_7}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{13}|\hat{1}^+_\beta|A_1\rangle \langle B_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_2} t_{A_{13},I_7}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle \langle A_{13}|\hat{1}^+_\beta|A_1\rangle \langle B_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_2} t_{A_{13},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_3, I_7)\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^B 0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_{13},I_7}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^B 0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_{13},I_7}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle t_{B_3}t_{A_{13},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_2, I_{10})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^B 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_{11},I_{10}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^B 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_2}t_{A_{11},I_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_3, I_{10})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^B 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_{11},I_{10}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^B 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_{11},I_{10}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_{11},I_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_2, I_8)\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_{13},I_8}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_{13},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_2|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_{13},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_2|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_{13},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_{13},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_2}t_{A_{13},I_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_3,I_8)\rangle =$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_{13},I_8}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_{13},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_3|\hat{0}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_{13},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_3|\hat{1}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_{13},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_{13},I_8}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle t_{B_3}t_{A_{13},I_8}$$

$$\langle(A_1,B_1)|\hat{H}|(B_9,I_{12})\rangle =$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_9,I_{12}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^A|\hat{g}|0^B 0^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_9,I_{12}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^A 1^A|\hat{g}|0^B 0^I\rangle\langle A_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_9,I_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(B_7,I_{14})\rangle =$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar\beta}^+|I_0\rangle t_{B_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^A|\hat{g}|0^B 0^I\rangle\langle A_0|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|A_1\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar\beta}^+|I_0\rangle t_{B_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^A|\hat{g}|0^B 0^I\rangle\langle A_0|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|A_1\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar\beta}^+|I_0\rangle t_{B_7,I_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(B_{10},I_{12})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_{10},I_{12}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^B 0^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_{10},I_{12}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^B 0^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_{10},I_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(B_8,I_{14})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|A_1\rangle\langle B_8|\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar\beta}^+|I_0\rangle t_{B_8,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 0^I\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_8|\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar\beta}^+|I_0\rangle t_{B_8,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|A_1\rangle\langle B_8|\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar\beta}^+|I_0\rangle t_{B_8,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 0^I\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_8|\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar\beta}^+|I_0\rangle t_{B_8,I_{14}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^B 0^I\rangle\langle A_0|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|A_1\rangle\langle B_8|\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar\beta}^+|I_0\rangle t_{B_8,I_{14}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^B 0^I\rangle\langle A_0|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|A_1\rangle\langle B_8|\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\bar\beta}^+|I_0\rangle t_{B_8,I_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_2,B_9,I_{12})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_2} t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_2} t_{B_9,I_{12}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^B 0^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_2} t_{B_9,I_{12}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 0^B\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_2} t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_2} t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_2}t_{B_9,I_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_3,B_9,I_{12})\rangle =$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_3}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_3}t_{B_9,I_{12}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^B 0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_3}t_{B_9,I_{12}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 0^B\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_3}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_3}t_{B_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_3}t_{B_9,I_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_2,B_7,I_{14})\rangle =$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_2}t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_2}t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_2}t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_2}t_{B_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^B 0^I\rangle\langle A_2|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_2}t_{B_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 0^B\rangle\langle A_2|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_2}t_{B_7,I_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_3,B_7,I_{14})\rangle =$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_3}t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_3}t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_3}t_{B_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^A 0^I\rangle\langle A_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_3}t_{B_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^B 0^I\rangle\langle A_3|\hat{0}^+_\beta\hat{1}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_3}t_{B_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^A|\hat{g}|0^I 0^B\rangle\langle A_3|\hat{1}^+_\beta\hat{0}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_3}t_{B_7,I_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_2, B_{10}, I_{12})\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_2|\hat{0}_\alpha^+ \hat{1}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_2} t_{B_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_2|\hat{1}_\alpha^+ \hat{0}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_2} t_{B_{10},I_{12}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 0^I\rangle \langle A_2|\hat{0}_\alpha^+ \hat{1}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_2} t_{B_{10},I_{12}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^B\rangle \langle A_2|\hat{1}_\alpha^+ \hat{0}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_2} t_{B_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_2|\hat{0}_\beta^+ \hat{1}_\beta^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_2} t_{B_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_2|\hat{1}_\beta^+ \hat{0}_\beta^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_2} t_{B_{10},I_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_3, B_{10}, I_{12})\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_3|\hat{0}_\alpha^+ \hat{1}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_3} t_{B_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_3|\hat{1}_\alpha^+ \hat{0}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_3} t_{B_{10},I_{12}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 0^I\rangle \langle A_3|\hat{0}_\alpha^+ \hat{1}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_3} t_{B_{10},I_{12}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^B\rangle \langle A_3|\hat{1}_\alpha^+ \hat{0}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_3} t_{B_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_3|\hat{0}_\beta^+ \hat{1}_\beta^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_3} t_{B_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_3|\hat{1}_\beta^+ \hat{0}_\beta^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{A_3} t_{B_{10},I_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_2, B_8, I_{14})\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_2|\hat{0}_\beta^+ \hat{1}_\beta^-|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{A_2} t_{B_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_2|\hat{0}_\alpha^+ \hat{1}_\alpha^-|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{A_2} t_{B_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_2|\hat{1}_\beta^+ \hat{0}_\beta^-|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{A_2} t_{B_8,I_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 0^I\rangle \langle A_2|\hat{1}_\alpha^+ \hat{0}_\alpha^-|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{A_2} t_{B_8,I_{14}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 0^I\rangle \langle A_2|\hat{0}_\beta^+ \hat{1}_\beta^-|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{A_2} t_{B_8,I_{14}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^I 1^B\rangle \langle A_2|\hat{1}_\beta^+ \hat{0}_\beta^-|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{A_2} t_{B_8,I_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_3, B_8, I_{14})\rangle =$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|1^{A}0^{I}\rangle\langle A_3|\hat{0}^{+}_{\beta}\hat{1}^{-}_{\beta}|A_1\rangle\langle B_8|\hat{1}^{-}_{\beta}|B_1\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_0\rangle t_{A_3}t_{B_8,I_{14}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|1^{A}0^{I}\rangle\langle A_3|\hat{0}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|A_1\rangle\langle B_8|\hat{1}^{-}_{\beta}|B_1\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_0\rangle t_{A_3}t_{B_8,I_{14}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|1^{A}0^{I}\rangle\langle A_3|\hat{1}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_1\rangle\langle B_8|\hat{1}^{-}_{\beta}|B_1\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_0\rangle t_{A_3}t_{B_8,I_{14}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|1^{A}0^{I}\rangle\langle A_3|\hat{1}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|A_1\rangle\langle B_8|\hat{1}^{-}_{\beta}|B_1\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_0\rangle t_{A_3}t_{B_8,I_{14}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^{A}1^{A}|\hat{g}|1^{B}0^{I}\rangle\langle A_3|\hat{0}^{+}_{\beta}\hat{1}^{-}_{\beta}|A_1\rangle\langle B_8|\hat{1}^{-}_{\beta}|B_1\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_0\rangle t_{A_3}t_{B_8,I_{14}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^{A}1^{A}|\hat{g}|0^{I}1^{B}\rangle\langle A_3|\hat{1}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_1\rangle\langle B_8|\hat{1}^{-}_{\beta}|B_1\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_0\rangle t_{A_3}t_{B_8,I_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(B_9,I_{11})\rangle =$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|0^{A}1^{I}\rangle\langle A_0|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|A_1\rangle\langle B_9|\hat{0}^{-}_{\alpha}|B_1\rangle\langle I_{11}|\hat{1}^{+}_{\alpha}|I_0\rangle t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{A}1^{I}\rangle\langle A_0|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|A_1\rangle\langle B_9|\hat{0}^{-}_{\alpha}|B_1\rangle\langle I_{11}|\hat{1}^{+}_{\alpha}|I_0\rangle t_{B_9,I_{11}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^{A}0^{A}|\hat{g}|0^{B}1^{I}\rangle\langle A_0|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|A_1\rangle\langle B_9|\hat{0}^{-}_{\alpha}|B_1\rangle\langle I_{11}|\hat{1}^{+}_{\alpha}|I_0\rangle t_{B_9,I_{11}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^{A}1^{A}|\hat{g}|0^{B}1^{I}\rangle\langle A_0|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|A_1\rangle\langle B_9|\hat{0}^{-}_{\alpha}|B_1\rangle\langle I_{11}|\hat{1}^{+}_{\alpha}|I_0\rangle t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|0^{A}1^{I}\rangle\langle A_0|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_1\rangle\langle B_9|\hat{0}^{-}_{\alpha}|B_1\rangle\langle I_{11}|\hat{1}^{+}_{\alpha}|I_0\rangle t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{A}1^{I}\rangle\langle A_0|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|A_1\rangle\langle B_9|\hat{0}^{-}_{\alpha}|B_1\rangle\langle I_{11}|\hat{1}^{+}_{\alpha}|I_0\rangle t_{B_9,I_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(B_7,I_{13})\rangle =$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|0^{A}1^{I}\rangle\langle A_0|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_1\rangle\langle B_7|\hat{0}^{-}_{\beta}|B_1\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_0\rangle t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|0^{A}1^{I}\rangle\langle A_0|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|A_1\rangle\langle B_7|\hat{0}^{-}_{\beta}|B_1\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_0\rangle t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{A}1^{I}\rangle\langle A_0|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|A_1\rangle\langle B_7|\hat{0}^{-}_{\beta}|B_1\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_0\rangle t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{A}1^{I}\rangle\langle A_0|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|A_1\rangle\langle B_7|\hat{0}^{-}_{\beta}|B_1\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_0\rangle t_{B_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^{A}0^{A}|\hat{g}|0^{B}1^{I}\rangle\langle A_0|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_1\rangle\langle B_7|\hat{0}^{-}_{\beta}|B_1\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_0\rangle t_{B_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_{I}\langle 1^{A}1^{A}|\hat{g}|0^{B}1^{I}\rangle\langle A_0|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|A_1\rangle\langle B_7|\hat{0}^{-}_{\beta}|B_1\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_0\rangle t_{B_7,I_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(B_{10},I_{11})\rangle =$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|0^{A}1^{I}\rangle\langle A_0|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|A_1\rangle\langle B_{10}|\hat{1}^{-}_{\alpha}|B_1\rangle\langle I_{11}|\hat{1}^{+}_{\alpha}|I_0\rangle t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|1^{A}1^{I}\rangle\langle A_0|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|A_1\rangle\langle B_{10}|\hat{1}^{-}_{\alpha}|B_1\rangle\langle I_{11}|\hat{1}^{+}_{\alpha}|I_0\rangle t_{B_{10},I_{11}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^B 1^I\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_{10},I_{11}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^B 1^I\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{B_{10},I_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(B_8,I_{13})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^A 1^I\rangle\langle A_0|\hat{0}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_0|\hat{1}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_8,I_{13}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^A|\hat{g}|1^B 1^I\rangle\langle A_0|\hat{0}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_8,I_{13}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^A|\hat{g}|1^B 1^I\rangle\langle A_0|\hat{1}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle t_{B_8,I_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_2,B_9,I_{11})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_2} t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_2} t_{B_9,I_{11}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^B 1^I\rangle\langle A_2|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_2} t_{B_9,I_{11}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^B\rangle\langle A_2|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_2} t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}^+_\beta \hat{1}^-_\beta|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_2} t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}^+_\beta \hat{0}^-_\beta|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_2} t_{B_9,I_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_3,B_9,I_{11})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_3} t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_3} t_{B_9,I_{11}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^B 1^I\rangle\langle A_3|\hat{0}^+_\alpha \hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_3} t_{B_9,I_{11}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^B\rangle\langle A_3|\hat{1}^+_\alpha \hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle t_{A_3} t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_3}t_{B_9,I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_3}t_{B_9,I_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_2,B_7,I_{13})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_2}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_2}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_2}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_2}t_{B_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^B 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_2}t_{B_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^B\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_2}t_{B_7,I_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_3,B_7,I_{13})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_3}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_3}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_3}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_3}t_{B_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|0^B 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_3}t_{B_7,I_{13}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 0^B\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_3}t_{B_7,I_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_2,B_{10},I_{11})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_2}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_2}t_{B_{10},I_{11}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_2}t_{B_{10},I_{11}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^B\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_2}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_2}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_2}t_{B_{10},I_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_3, B_{10}, I_{11})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_3} t_{B_{10}, I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_3} t_{B_{10}, I_{11}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_3} t_{B_{10}, I_{11}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^B\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_3} t_{B_{10}, I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_3} t_{B_{10}, I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_3} t_{B_{10}, I_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_2, B_8, I_{13})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_2} t_{B_8, I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_2} t_{B_8, I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_2} t_{B_8, I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_2} t_{B_8, I_{13}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 1^I\rangle\langle A_2|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_2} t_{B_8, I_{13}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^B\rangle\langle A_2|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_2} t_{B_8, I_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_3, B_8, I_{13})\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_3} t_{B_8, I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_3} t_{B_8, I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_3} t_{B_8, I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^A 1^I\rangle\langle A_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_3} t_{B_8, I_{13}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^B 1^I\rangle\langle A_3|\hat{0}_\beta^+\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_3} t_{B_8, I_{13}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^A|\hat{g}|1^I 1^B\rangle\langle A_3|\hat{1}_\beta^+\hat{0}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_3} t_{B_8, I_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_1)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 0^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{12},B_9}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 0^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{12},B_9}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{12},B_9}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{12},B_9}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{12},B_9}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{12},B_9}t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_7, I_1)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 0^I\rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{14},B_7}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{14},B_7}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^I\rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{14},B_7}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^I\rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{14},B_7}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 0^I\rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{14},B_7}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{14},B_7}t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_2)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{12},B_9}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{12},B_9}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{12},B_9}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{12},B_9}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 0^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{12},B_9}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{12},B_9}t_{I_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_3)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{12},B_9}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{12},B_9}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{12},B_9}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{12},B_9}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^I 0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{12},B_9}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^I 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{12},B_9}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_7,I_2)\rangle =$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{14},B_7}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{14},B_7}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^I 0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{14},B_7}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^I 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{14},B_7}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{14},B_7}t_{I_2}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{14},B_7}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_7,I_3)\rangle =$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{14},B_7}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{14},B_7}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|1^I 0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{14},B_7}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^I 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{14},B_7}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{14},B_7}t_{I_3}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{14},B_7}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_{10},I_1)\rangle =$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{12},B_{10}}t_{I_1}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{12},B_{10}}t_{I_1}$$

$$+\tfrac{1}{2}\sum_{I}\langle 0^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{12},B_{10}}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{12},B_{10}}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{12},B_{10}}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{12},B_{10}}t_{I_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_8,I_1)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{14},B_8}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{14},B_8}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{14},B_8}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{14},B_8}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{14},B_8}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{14},B_8}t_{I_1}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_{10},I_2)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{12},B_{10}}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{12},B_{10}}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{12},B_{10}}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{12},B_{10}}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{12},B_{10}}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{12},B_{10}}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_{10},I_3)\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{12},B_{10}}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{12},B_{10}}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{12},B_{10}}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{12},B_{10}}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{12},B_{10}}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|0^I1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{12},B_{10}}t_{I_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_8,I_2)\rangle =$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{14},B_8}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{14},B_8}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|1^I0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{14},B_8}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|0^I1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{14},B_8}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{14},B_8}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{14},B_8}t_{I_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_8,I_3)\rangle =$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{14},B_8}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{14},B_8}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|1^I0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{14},B_8}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A1^B|\hat{g}|0^I1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{14},B_8}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{14},B_8}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{14},B_8}t_{I_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_9,I_1)\rangle =$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|0^B0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{11},B_9}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^I|\hat{g}|0^B0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{11},B_9}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|0^B1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{11},B_9}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A1^I|\hat{g}|0^B1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{11},B_9}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|0^I0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{11},B_9}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{11},B_9}t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_7, I_1)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{13},B_7} t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{13},B_7} t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{13},B_7} t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{13},B_7} t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{13},B_7} t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{13},B_7} t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_9, I_2)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{11},B_9} t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{11},B_9} t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{11},B_9} t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{11},B_9} t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{11},B_9} t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{11},B_9} t_{I_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_9, I_3)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{11},B_9} t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{11},B_9} t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{11},B_9} t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{11},B_9} t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{11},B_9} t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{11},B_9} t_{I_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_7, I_2)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{13},B_7}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{13},B_7}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{13},B_7}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{13},B_7}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{13},B_7}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{13},B_7}t_{I_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_7,I_3)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{13},B_7}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{13},B_7}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{13},B_7}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{13},B_7}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{13},B_7}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{13},B_7}t_{I_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_{10},I_1)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{11},B_{10}}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{11},B_{10}}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{11},B_{10}}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{11},B_{10}}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^I 0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{11},B_{10}}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^I 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{11},B_{10}}t_{I_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_8,I_1)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{13},B_8}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{13},B_8}t_{I_1}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|0^I 0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{13},B_8}t_{I_1}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|1^I 1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{13},B_8}t_{I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{13},B_8}t_{I_1}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{13},B_8}t_{I_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_{10},I_2)\rangle =$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{11},B_{10}}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{11},B_{10}}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{11},B_{10}}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{11},B_{10}}t_{I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|1^I 0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{11},B_{10}}t_{I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|0^I 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{11},B_{10}}t_{I_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_{10},I_3)\rangle =$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{11},B_{10}}t_{I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{11},B_{10}}t_{I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{11},B_{10}}t_{I_3}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{11},B_{10}}t_{I_3}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|1^I 0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{11},B_{10}}t_{I_3}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|0^I 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{11},B_{10}}t_{I_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_8,I_2)\rangle =$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{13},B_8}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{13},B_8}t_{I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|1^I 0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{13},B_8}t_{I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|0^I 1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{13},B_8}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{13},B_8}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{13},B_8}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_8,I_3)\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{13},B_8}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{13},B_8}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^I 0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_{13},B_8}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^I 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_{13},B_8}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_{13},B_8}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_{13},B_8}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,I_{12})\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^B 0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_9,I_{12}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^B 0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_9,I_{12}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_0|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{A_9,I_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,I_{14})\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^B 0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_7,I_{14}}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^B 0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\beta\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_7,I_{14}}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 1^B\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle t_{A_7,I_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_2, I_{12})\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^B 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_2} t_{A_9,I_{12}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^B 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_2} t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_2} t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_2} t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_2} t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_2} t_{A_9,I_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_3, I_{12})\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^B 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_3} t_{A_9,I_{12}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^B 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_3} t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_3} t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_3} t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_3} t_{A_9,I_{12}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_3} t_{A_9,I_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_2, I_{14})\rangle =$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^B 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_2} t_{A_7,I_{14}}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^B 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_2} t_{A_7,I_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_2} t_{A_7,I_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_2} t_{A_7,I_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_2} t_{A_7,I_{14}}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_2} t_{A_7,I_{14}}$$

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$$\langle (A_1, B_1) | \hat{H} | (A_7, B_3, I_{14}) \rangle =$$

$$+\tfrac{1}{2} \sum_I \langle 0^A 1^B | \hat{g} | 0^B 0^I \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle B_3 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{B_3} t_{A_7, I_{14}}$$

$$+\tfrac{1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 1^B 0^I \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle B_3 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{B_3} t_{A_7, I_{14}}$$

$$+\tfrac{-1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 0^I 1^B \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle B_3 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{B_3} t_{A_7, I_{14}}$$

$$+\tfrac{-1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 0^I 1^B \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle B_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{B_3} t_{A_7, I_{14}}$$

$$+\tfrac{-1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 0^I 1^B \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle B_3 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{B_3} t_{A_7, I_{14}}$$

$$+\tfrac{-1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 0^I 1^B \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle B_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{B_3} t_{A_7, I_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{10}, I_{12}) \rangle =$$

$$+\tfrac{1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 0^B 0^I \rangle \langle A_{10} | \hat{1}_{\alpha}^- | A_1 \rangle \langle B_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle t_{A_{10}, I_{12}}$$

$$+\tfrac{1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 1^B 0^I \rangle \langle A_{10} | \hat{1}_{\alpha}^- | A_1 \rangle \langle B_0 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle t_{A_{10}, I_{12}}$$

$$+\tfrac{-1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 0^I 0^B \rangle \langle A_{10} | \hat{1}_{\alpha}^- | A_1 \rangle \langle B_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle t_{A_{10}, I_{12}}$$

$$+\tfrac{-1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 0^I 1^B \rangle \langle A_{10} | \hat{1}_{\alpha}^- | A_1 \rangle \langle B_0 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle t_{A_{10}, I_{12}}$$

$$+\tfrac{-1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 0^I 0^B \rangle \langle A_{10} | \hat{1}_{\alpha}^- | A_1 \rangle \langle B_0 | \hat{0}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle t_{A_{10}, I_{12}}$$

$$+\tfrac{-1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 0^I 1^B \rangle \langle A_{10} | \hat{1}_{\alpha}^- | A_1 \rangle \langle B_0 | \hat{1}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle t_{A_{10}, I_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, I_{14}) \rangle =$$

$$+\tfrac{1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 0^B 0^I \rangle \langle A_8 | \hat{1}_{\beta}^- | A_1 \rangle \langle B_0 | \hat{0}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{A_8, I_{14}}$$

$$+\tfrac{1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 1^B 0^I \rangle \langle A_8 | \hat{1}_{\beta}^- | A_1 \rangle \langle B_0 | \hat{1}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{A_8, I_{14}}$$

$$+\tfrac{-1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 0^I 0^B \rangle \langle A_8 | \hat{1}_{\beta}^- | A_1 \rangle \langle B_0 | \hat{0}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{A_8, I_{14}}$$

$$+\tfrac{-1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 0^I 0^B \rangle \langle A_8 | \hat{1}_{\beta}^- | A_1 \rangle \langle B_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{A_8, I_{14}}$$

$$+\tfrac{-1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 0^I 1^B \rangle \langle A_8 | \hat{1}_{\beta}^- | A_1 \rangle \langle B_0 | \hat{1}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{A_8, I_{14}}$$

$$+\tfrac{-1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 0^I 1^B \rangle \langle A_8 | \hat{1}_{\beta}^- | A_1 \rangle \langle B_0 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{A_8, I_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{10}, B_2, I_{12}) \rangle =$$

$$+\tfrac{1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 0^B 0^I \rangle \langle A_{10} | \hat{1}_{\alpha}^- | A_1 \rangle \langle B_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle t_{B_2} t_{A_{10}, I_{12}}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^B 0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_2}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_2}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_2}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_2}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_2}t_{A_{10},I_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_3,I_{12})\rangle =$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|0^B 0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_3}t_{A_{10},I_{12}}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^B 0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_3}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_3}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_3}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_3}t_{A_{10},I_{12}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle t_{B_3}t_{A_{10},I_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_2,I_{14})\rangle =$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|0^B 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_2}t_{A_8,I_{14}}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^B 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_2}t_{A_8,I_{14}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_2}t_{A_8,I_{14}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_2}t_{A_8,I_{14}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_2}t_{A_8,I_{14}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_2}t_{A_8,I_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_3,I_{14})\rangle =$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 1^B|\hat{g}|0^B 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_3}t_{A_8,I_{14}}$$

$$+\frac{1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|1^B 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_3}t_{A_8,I_{14}}$$

$$+\frac{-1}{2}\sum_{I}\langle 1^A 0^B|\hat{g}|0^I 1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle t_{B_3}t_{A_8,I_{14}}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 0^I 1^B \rangle \langle A_8 | \hat{1}_{\beta}^- | A_1 \rangle \langle B_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{B_3} t_{A_8, I_{14}}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 0^I 1^B \rangle \langle A_8 | \hat{1}_{\beta}^- | A_1 \rangle \langle B_3 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{B_3} t_{A_8, I_{14}}$$

$$+ \frac{-1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 0^I 1^B \rangle \langle A_8 | \hat{1}_{\beta}^- | A_1 \rangle \langle B_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{B_3} t_{A_8, I_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_9, I_{11}) \rangle =$$

$$+ \frac{1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 0^B 1^I \rangle \langle A_9 | \hat{0}_{\alpha}^- | A_1 \rangle \langle B_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_{11} | \hat{1}_{\alpha}^+ | I_0 \rangle t_{A_9, I_{11}}$$

$$+ \frac{1}{2} \sum_I \langle 0^A 1^B | \hat{g} | 1^B 1^I \rangle \langle A_9 | \hat{0}_{\alpha}^- | A_1 \rangle \langle B_0 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_{11} | \hat{1}_{\alpha}^+ | I_0 \rangle t_{A_9, I_{11}}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 1^I 0^B \rangle \langle A_9 | \hat{0}_{\alpha}^- | A_1 \rangle \langle B_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_{11} | \hat{1}_{\alpha}^+ | I_0 \rangle t_{A_9, I_{11}}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 1^B | \hat{g} | 1^I 1^B \rangle \langle A_9 | \hat{0}_{\alpha}^- | A_1 \rangle \langle B_0 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_{11} | \hat{1}_{\alpha}^+ | I_0 \rangle t_{A_9, I_{11}}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 1^I 0^B \rangle \langle A_9 | \hat{0}_{\alpha}^- | A_1 \rangle \langle B_0 | \hat{0}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_{11} | \hat{1}_{\alpha}^+ | I_0 \rangle t_{A_9, I_{11}}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 1^B | \hat{g} | 1^I 1^B \rangle \langle A_9 | \hat{0}_{\alpha}^- | A_1 \rangle \langle B_0 | \hat{1}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_{11} | \hat{1}_{\alpha}^+ | I_0 \rangle t_{A_9, I_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, I_{13}) \rangle =$$

$$+ \frac{1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 0^B 1^I \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle B_0 | \hat{0}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_{13} | \hat{1}_{\beta}^+ | I_0 \rangle t_{A_7, I_{13}}$$

$$+ \frac{1}{2} \sum_I \langle 0^A 1^B | \hat{g} | 1^B 1^I \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle B_0 | \hat{1}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_{13} | \hat{1}_{\beta}^+ | I_0 \rangle t_{A_7, I_{13}}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 1^I 0^B \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle B_0 | \hat{0}_{\beta}^+ \hat{0}_{\beta}^- | B_1 \rangle \langle I_{13} | \hat{1}_{\beta}^+ | I_0 \rangle t_{A_7, I_{13}}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 1^I 0^B \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle B_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_{13} | \hat{1}_{\beta}^+ | I_0 \rangle t_{A_7, I_{13}}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 1^B | \hat{g} | 1^I 1^B \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle B_0 | \hat{1}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_{13} | \hat{1}_{\beta}^+ | I_0 \rangle t_{A_7, I_{13}}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 1^B | \hat{g} | 1^I 1^B \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle B_0 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_{13} | \hat{1}_{\beta}^+ | I_0 \rangle t_{A_7, I_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_9, B_2, I_{11}) \rangle =$$

$$+ \frac{1}{2} \sum_I \langle 0^A 1^B | \hat{g} | 0^B 1^I \rangle \langle A_9 | \hat{0}_{\alpha}^- | A_1 \rangle \langle B_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_{11} | \hat{1}_{\alpha}^+ | I_0 \rangle t_{B_2} t_{A_9, I_{11}}$$

$$+ \frac{1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 1^B 1^I \rangle \langle A_9 | \hat{0}_{\alpha}^- | A_1 \rangle \langle B_2 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_{11} | \hat{1}_{\alpha}^+ | I_0 \rangle t_{B_2} t_{A_9, I_{11}}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 1^I 1^B \rangle \langle A_9 | \hat{0}_{\alpha}^- | A_1 \rangle \langle B_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle I_{11} | \hat{1}_{\alpha}^+ | I_0 \rangle t_{B_2} t_{A_9, I_{11}}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 1^I 1^B \rangle \langle A_9 | \hat{0}_{\alpha}^- | A_1 \rangle \langle B_2 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | B_1 \rangle \langle I_{11} | \hat{1}_{\alpha}^+ | I_0 \rangle t_{B_2} t_{A_9, I_{11}}$$

$$+ \frac{-1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 1^I 1^B \rangle \langle A_9 | \hat{0}_{\alpha}^- | A_1 \rangle \langle B_2 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | B_1 \rangle \langle I_{11} | \hat{1}_{\alpha}^+ | I_0 \rangle t_{B_2} t_{A_9, I_{11}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^I1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_2}t_{A_9,I_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_3,I_{11})\rangle =$$

$$+\frac{1}{2}\sum_{I}\langle 0^A1^B|\hat{g}|0^B1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_3}t_{A_9,I_{11}}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^B1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_3}t_{A_9,I_{11}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^I1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_3}t_{A_9,I_{11}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^I1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_3}t_{A_9,I_{11}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^I1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_3}t_{A_9,I_{11}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^I1^B\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_3}t_{A_9,I_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_2,I_{13})\rangle =$$

$$+\frac{1}{2}\sum_{I}\langle 0^A1^B|\hat{g}|0^B1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_2}t_{A_7,I_{13}}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^B1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_2}t_{A_7,I_{13}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^I1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_2}t_{A_7,I_{13}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^I1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_2}t_{A_7,I_{13}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^I1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_2}t_{A_7,I_{13}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^I1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_2}t_{A_7,I_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_3,I_{13})\rangle =$$

$$+\frac{1}{2}\sum_{I}\langle 0^A1^B|\hat{g}|0^B1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_3}t_{A_7,I_{13}}$$

$$+\frac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^B1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_3}t_{A_7,I_{13}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^I1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_3}t_{A_7,I_{13}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^I1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_3}t_{A_7,I_{13}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^I1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_3}t_{A_7,I_{13}}$$

$$+\frac{-1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|1^I1^B\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_3}t_{A_7,I_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},I_{11})\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^B 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_{10},I_{11}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^B 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 0^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^I 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 0^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^I 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{A_{10},I_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,I_{13})\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^B 1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_8,I_{13}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^B 1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 0^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 0^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^I 1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^I 1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{A_8,I_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_2,I_{11})\rangle =$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^B 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_2} t_{A_{10},I_{11}}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^B 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_2} t_{A_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_2} t_{A_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_2} t_{A_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_2} t_{A_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_2} t_{A_{10},I_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_3,I_{11})\rangle =$$

$$+\tfrac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|0^B1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_3}t_{A_{10},I_{11}}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^B1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_3}t_{A_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_3}t_{A_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_3}t_{A_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_3}t_{A_{10},I_{11}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I1^B\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle t_{B_3}t_{A_{10},I_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_2,I_{13})\rangle=$$

$$+\tfrac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|0^B1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_2}t_{A_8,I_{13}}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^B1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_2}t_{A_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_2}t_{A_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_2}t_{A_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_2}t_{A_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_2}t_{A_8,I_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_3,I_{13})\rangle=$$

$$+\tfrac{1}{2}\sum_I\langle 1^A1^B|\hat{g}|0^B1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_3}t_{A_8,I_{13}}$$

$$+\tfrac{1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^B1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_3}t_{A_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{0}_\beta^+\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_3}t_{A_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_3}t_{A_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{1}_\beta^+\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_3}t_{A_8,I_{13}}$$

$$+\tfrac{-1}{2}\sum_I\langle 1^A0^B|\hat{g}|1^I1^B\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle t_{B_3}t_{A_8,I_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_{12},I_1)\rangle=$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^B0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_9,B_{12}}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I\langle 0^A0^I|\hat{g}|0^B0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_9,B_{12}}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_9,B_{12}}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_9,B_{12}}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_9,B_{12}}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_9,B_{12}}t_{I_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_{14},I_1)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_7,B_{14}}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_7,B_{14}}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_7,B_{14}}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_7,B_{14}}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_7,B_{14}}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_7,B_{14}}t_{I_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_{12},I_2)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_9,B_{12}}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_9,B_{12}}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_9,B_{12}}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_9,B_{12}}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_9,B_{12}}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_9,B_{12}}t_{I_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_{12},I_3)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_9,B_{12}}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_9,B_{12}}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_9,B_{12}}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_9,B_{12}}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_9,B_{12}}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_9,B_{12}}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_{14},I_2)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_7,B_{14}}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_7,B_{14}}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_7,B_{14}}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_7,B_{14}}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_7,B_{14}}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_7,B_{14}}t_{I_2}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_{14},I_3)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_7,B_{14}}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_7,B_{14}}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|0^I 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_7,B_{14}}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 0^A 0^B|\hat{g}|1^I 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_7,B_{14}}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_7,B_{14}}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_7,B_{14}}t_{I_3}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_{12},I_1)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{10},B_{12}}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{10},B_{12}}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{10},B_{12}}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^I|\hat{g}|0^B 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{10},B_{12}}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{10},B_{12}}t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{10},B_{12}}t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{14}, I_1)\rangle =$$

$$+ \frac{-1}{2}\sum_I \langle 1^A 0^I |\hat{g}| 0^B 0^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_8,B_{14}} t_{I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 1^A 1^I |\hat{g}| 0^B 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_8,B_{14}} t_{I_1}$$

$$+ \frac{1}{2}\sum_I \langle 1^A 0^B |\hat{g}| 0^I 0^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_8,B_{14}} t_{I_1}$$

$$+ \frac{1}{2}\sum_I \langle 1^A 0^B |\hat{g}| 1^I 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_8,B_{14}} t_{I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 1^A 0^I |\hat{g}| 0^B 0^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_8,B_{14}} t_{I_1}$$

$$+ \frac{-1}{2}\sum_I \langle 1^A 1^I |\hat{g}| 0^B 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_8,B_{14}} t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{12}, I_2)\rangle =$$

$$+ \frac{-1}{2}\sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{10},B_{12}} t_{I_2}$$

$$+ \frac{-1}{2}\sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{10},B_{12}} t_{I_2}$$

$$+ \frac{-1}{2}\sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{10},B_{12}} t_{I_2}$$

$$+ \frac{-1}{2}\sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{10},B_{12}} t_{I_2}$$

$$+ \frac{1}{2}\sum_I \langle 1^A 0^B |\hat{g}| 0^I 1^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{10},B_{12}} t_{I_2}$$

$$+ \frac{1}{2}\sum_I \langle 1^A 0^B |\hat{g}| 1^I 0^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{10},B_{12}} t_{I_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{12}, I_3)\rangle =$$

$$+ \frac{-1}{2}\sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{10},B_{12}} t_{I_3}$$

$$+ \frac{-1}{2}\sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{10},B_{12}} t_{I_3}$$

$$+ \frac{-1}{2}\sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{10},B_{12}} t_{I_3}$$

$$+ \frac{-1}{2}\sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{10},B_{12}} t_{I_3}$$

$$+ \frac{1}{2}\sum_I \langle 1^A 0^B |\hat{g}| 0^I 1^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{10},B_{12}} t_{I_3}$$

$$+ \frac{1}{2}\sum_I \langle 1^A 0^B |\hat{g}| 1^I 0^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{10},B_{12}} t_{I_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{14}, I_2)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_8,B_{14}} t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_8,B_{14}} t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_8,B_{14}} t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 0^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_8,B_{14}} t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_8,B_{14}} t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_8,B_{14}} t_{I_2}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{14}, I_3)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_8,B_{14}} t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_8,B_{14}} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|0^I 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_3|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_8,B_{14}} t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 0^B|\hat{g}|1^I 0^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_3|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_8,B_{14}} t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_3|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_8,B_{14}} t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|0^B 1^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_3|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_8,B_{14}} t_{I_3}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{11}, I_1)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 0^I\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_9,B_{11}} t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 0^I\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_9,B_{11}} t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^B 1^I\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_9,B_{11}} t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 0^A 1^I|\hat{g}|1^B 1^I\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_1|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_9,B_{11}} t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 0^I\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_9,B_{11}} t_{I_1}$$

$$+\frac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 1^I\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_9,B_{11}} t_{I_1}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{13}, I_1)\rangle =$$

$$+\frac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 0^I\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_7,B_{13}} t_{I_1}$$

$$+\frac{-1}{2}\sum_{I}\langle0^A1^I|\hat{g}|1^B1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_7,B_{13}}t_{I_1}$$

$$+\frac{1}{2}\sum_{I}\langle0^A1^B|\hat{g}|0^I0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_1|\hat{0}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_7,B_{13}}t_{I_1}$$

$$+\frac{1}{2}\sum_{I}\langle0^A1^B|\hat{g}|1^I1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_7,B_{13}}t_{I_1}$$

$$+\frac{-1}{2}\sum_{I}\langle0^A0^I|\hat{g}|1^B0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_1|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_7,B_{13}}t_{I_1}$$

$$+\frac{-1}{2}\sum_{I}\langle0^A1^I|\hat{g}|1^B1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_1|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_7,B_{13}}t_{I_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_{11},I_2)\rangle=$$

$$+\frac{-1}{2}\sum_{I}\langle0^A0^I|\hat{g}|1^B1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_9,B_{11}}t_{I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle0^A0^I|\hat{g}|1^B1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_9,B_{11}}t_{I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle0^A0^I|\hat{g}|1^B1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_9,B_{11}}t_{I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle0^A0^I|\hat{g}|1^B1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_9,B_{11}}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle0^A1^B|\hat{g}|0^I1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_9,B_{11}}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle0^A1^B|\hat{g}|1^I0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_9,B_{11}}t_{I_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_{11},I_3)\rangle=$$

$$+\frac{-1}{2}\sum_{I}\langle0^A0^I|\hat{g}|1^B1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_9,B_{11}}t_{I_3}$$

$$+\frac{-1}{2}\sum_{I}\langle0^A0^I|\hat{g}|1^B1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_9,B_{11}}t_{I_3}$$

$$+\frac{-1}{2}\sum_{I}\langle0^A0^I|\hat{g}|1^B1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_9,B_{11}}t_{I_3}$$

$$+\frac{-1}{2}\sum_{I}\langle0^A0^I|\hat{g}|1^B1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_9,B_{11}}t_{I_3}$$

$$+\frac{1}{2}\sum_{I}\langle0^A1^B|\hat{g}|0^I1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_9,B_{11}}t_{I_3}$$

$$+\frac{1}{2}\sum_{I}\langle0^A1^B|\hat{g}|1^I0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_9,B_{11}}t_{I_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_{13},I_2)\rangle=$$

$$+\frac{-1}{2}\sum_{I}\langle0^A0^I|\hat{g}|1^B1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_7,B_{13}}t_{I_2}$$

$$+\frac{-1}{2}\sum_{I}\langle0^A0^I|\hat{g}|1^B1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{1}^+_\beta\hat{0}^-_\beta|I_0\rangle t_{A_7,B_{13}}t_{I_2}$$

$$+\frac{1}{2}\sum_{I}\langle0^A1^B|\hat{g}|0^I1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_2|\hat{0}^+_\beta\hat{1}^-_\beta|I_0\rangle t_{A_7,B_{13}}t_{I_2}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 0^I\rangle\langle A_7|\hat{0}_{\bar\beta}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar\beta}^+|B_1\rangle\langle I_2|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|I_0\rangle t_{A_7,B_{13}}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_7|\hat{0}_{\bar\beta}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar\beta}^+|B_1\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle t_{A_7,B_{13}}t_{I_2}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_7|\hat{0}_{\bar\beta}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar\beta}^+|B_1\rangle\langle I_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{A_7,B_{13}}t_{I_2}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_{13},I_3)\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_7|\hat{0}_{\bar\beta}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar\beta}^+|B_1\rangle\langle I_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|I_0\rangle t_{A_7,B_{13}}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_7|\hat{0}_{\bar\beta}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar\beta}^+|B_1\rangle\langle I_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|I_0\rangle t_{A_7,B_{13}}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|0^I 1^I\rangle\langle A_7|\hat{0}_{\bar\beta}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar\beta}^+|B_1\rangle\langle I_3|\hat{0}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|I_0\rangle t_{A_7,B_{13}}t_{I_3}$$

$$+\tfrac{1}{2}\sum_I \langle 0^A 1^B|\hat{g}|1^I 0^I\rangle\langle A_7|\hat{0}_{\bar\beta}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar\beta}^+|B_1\rangle\langle I_3|\hat{1}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|I_0\rangle t_{A_7,B_{13}}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_7|\hat{0}_{\bar\beta}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar\beta}^+|B_1\rangle\langle I_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle t_{A_7,B_{13}}t_{I_3}$$

$$+\tfrac{-1}{2}\sum_I \langle 0^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_7|\hat{0}_{\bar\beta}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar\beta}^+|B_1\rangle\langle I_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{A_7,B_{13}}t_{I_3}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_{11},I_1)\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^I 0^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^I 1^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_1}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_{13},I_1)\rangle =$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_8|\hat{1}_{\bar\beta}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar\beta}^+|B_1\rangle\langle I_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|I_0\rangle t_{A_8,B_{13}}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_8|\hat{1}_{\bar\beta}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar\beta}^+|B_1\rangle\langle I_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|I_0\rangle t_{A_8,B_{13}}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^I 0^I\rangle\langle A_8|\hat{1}_{\bar\beta}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar\beta}^+|B_1\rangle\langle I_1|\hat{0}_{\bar\beta}^+\hat{0}_{\bar\beta}^-|I_0\rangle t_{A_8,B_{13}}t_{I_1}$$

$$+\tfrac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^I 1^I\rangle\langle A_8|\hat{1}_{\bar\beta}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar\beta}^+|B_1\rangle\langle I_1|\hat{1}_{\bar\beta}^+\hat{1}_{\bar\beta}^-|I_0\rangle t_{A_8,B_{13}}t_{I_1}$$

$$+\tfrac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 0^I\rangle\langle A_8|\hat{1}_{\bar\beta}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar\beta}^+|B_1\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{A_8,B_{13}}t_{I_1}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 1^I|\hat{g}|1^B 1^I\rangle\langle A_8|\hat{1}_{\bar{\beta}}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar{\beta}}^+|B_1\rangle\langle I_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle t_{A_8,B_{13}}t_{I_1}$$

$\langle (A_1,B_1)|\hat{H}|(A_{10},B_{11},I_2)\rangle =$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_2|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^I 1^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^I 0^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_2}$$

$\langle (A_1,B_1)|\hat{H}|(A_{10},B_{11},I_3)\rangle =$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_3|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_3}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_3|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^I 1^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_3}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^I 0^I\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle B_{11}|\hat{1}_{\alpha}^+|B_1\rangle\langle I_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{A_{10},B_{11}}t_{I_3}$$

$\langle (A_1,B_1)|\hat{H}|(A_8,B_{13},I_2)\rangle =$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_8|\hat{1}_{\bar{\beta}}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar{\beta}}^+|B_1\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle t_{A_8,B_{13}}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_8|\hat{1}_{\bar{\beta}}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar{\beta}}^+|B_1\rangle\langle I_2|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle t_{A_8,B_{13}}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|0^I 1^I\rangle\langle A_8|\hat{1}_{\bar{\beta}}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar{\beta}}^+|B_1\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle t_{A_8,B_{13}}t_{I_2}$$

$$+\frac{1}{2}\sum_I \langle 1^A 1^B|\hat{g}|1^I 0^I\rangle\langle A_8|\hat{1}_{\bar{\beta}}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar{\beta}}^+|B_1\rangle\langle I_2|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle t_{A_8,B_{13}}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_8|\hat{1}_{\bar{\beta}}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar{\beta}}^+|B_1\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle t_{A_8,B_{13}}t_{I_2}$$

$$+\frac{-1}{2}\sum_I \langle 1^A 0^I|\hat{g}|1^B 1^I\rangle\langle A_8|\hat{1}_{\bar{\beta}}^-|A_1\rangle\langle B_{13}|\hat{1}_{\bar{\beta}}^+|B_1\rangle\langle I_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{A_8,B_{13}}t_{I_2}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_{13}, I_3) \rangle =$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_8 | \hat{1}_{\bar\beta}^- | A_1 \rangle \langle B_{13} | \hat{1}_{\bar\beta}^+ | B_1 \rangle \langle I_3 | \hat{0}_{\bar\beta}^+ \hat{1}_{\bar\beta}^- | I_0 \rangle t_{A_8, B_{13}} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_8 | \hat{1}_{\bar\beta}^- | A_1 \rangle \langle B_{13} | \hat{1}_{\bar\beta}^+ | B_1 \rangle \langle I_3 | \hat{1}_{\bar\beta}^+ \hat{0}_{\bar\beta}^- | I_0 \rangle t_{A_8, B_{13}} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 0^I 1^I \rangle \langle A_8 | \hat{1}_{\bar\beta}^- | A_1 \rangle \langle B_{13} | \hat{1}_{\bar\beta}^+ | B_1 \rangle \langle I_3 | \hat{0}_{\bar\beta}^+ \hat{1}_{\bar\beta}^- | I_0 \rangle t_{A_8, B_{13}} t_{I_3}$$

$$+ \tfrac{1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 1^I 0^I \rangle \langle A_8 | \hat{1}_{\bar\beta}^- | A_1 \rangle \langle B_{13} | \hat{1}_{\bar\beta}^+ | B_1 \rangle \langle I_3 | \hat{1}_{\bar\beta}^+ \hat{0}_{\bar\beta}^- | I_0 \rangle t_{A_8, B_{13}} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_8 | \hat{1}_{\bar\beta}^- | A_1 \rangle \langle B_{13} | \hat{1}_{\bar\beta}^+ | B_1 \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_8, B_{13}} t_{I_3}$$

$$+ \tfrac{-1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_8 | \hat{1}_{\bar\beta}^- | A_1 \rangle \langle B_{13} | \hat{1}_{\bar\beta}^+ | B_1 \rangle \langle I_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_8, B_{13}} t_{I_3}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{12}, J_{12}, K_9, L_9) \rangle =$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^K 0^L \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_{12} | \hat{0}_{\alpha}^+ | J_0 \rangle \langle K_9 | \hat{0}_{\alpha}^- | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_1, B_1} t_{I_{12}, K_9} t_{J_{12}, L_9}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^L 0^K \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_{12} | \hat{0}_{\alpha}^+ | J_0 \rangle \langle K_9 | \hat{0}_{\alpha}^- | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_1, B_1} t_{I_{12}, K_9} t_{J_{12}, L_9}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^K 0^L \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_{12} | \hat{0}_{\alpha}^+ | J_0 \rangle \langle K_9 | \hat{0}_{\alpha}^- | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_1, B_1} t_{I_{12}, L_9} t_{J_{12}, K_9}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^L 0^K \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_{12} | \hat{0}_{\alpha}^+ | J_0 \rangle \langle K_9 | \hat{0}_{\alpha}^- | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_1, B_1} t_{I_{12}, L_9} t_{J_{12}, K_9}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^K 0^L \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_{12} | \hat{0}_{\alpha}^+ | J_0 \rangle \langle K_9 | \hat{0}_{\alpha}^- | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_1} t_{B_1} t_{I_{12}, K_9} t_{J_{12}, L_9}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^L 0^K \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_{12} | \hat{0}_{\alpha}^+ | J_0 \rangle \langle K_9 | \hat{0}_{\alpha}^- | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_1} t_{B_1} t_{I_{12}, K_9} t_{J_{12}, L_9}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^K 0^L \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_{12} | \hat{0}_{\alpha}^+ | J_0 \rangle \langle K_9 | \hat{0}_{\alpha}^- | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_1} t_{B_1} t_{I_{12}, L_9} t_{J_{12}, K_9}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^L 0^K \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_{12} | \hat{0}_{\alpha}^+ | J_0 \rangle \langle K_9 | \hat{0}_{\alpha}^- | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_1} t_{B_1} t_{I_{12}, L_9} t_{J_{12}, K_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{14}, J_{14}, K_7, L_7) \rangle =$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^K 0^L \rangle \langle I_{14} | \hat{0}_{\bar\beta}^+ | I_0 \rangle \langle J_{14} | \hat{0}_{\bar\beta}^+ | J_0 \rangle \langle K_7 | \hat{0}_{\bar\beta}^- | K_0 \rangle \langle L_7 | \hat{0}_{\bar\beta}^- | L_0 \rangle t_{A_1, B_1} t_{I_{14}, K_7} t_{J_{14}, L_7}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^L 0^K \rangle \langle I_{14} | \hat{0}_{\bar\beta}^+ | I_0 \rangle \langle J_{14} | \hat{0}_{\bar\beta}^+ | J_0 \rangle \langle K_7 | \hat{0}_{\bar\beta}^- | K_0 \rangle \langle L_7 | \hat{0}_{\bar\beta}^- | L_0 \rangle t_{A_1, B_1} t_{I_{14}, K_7} t_{J_{14}, L_7}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^K 0^L \rangle \langle I_{14} | \hat{0}_{\bar\beta}^+ | I_0 \rangle \langle J_{14} | \hat{0}_{\bar\beta}^+ | J_0 \rangle \langle K_7 | \hat{0}_{\bar\beta}^- | K_0 \rangle \langle L_7 | \hat{0}_{\bar\beta}^- | L_0 \rangle t_{A_1, B_1} t_{I_{14}, L_7} t_{J_{14}, K_7}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^L 0^K \rangle \langle I_{14} | \hat{0}_{\bar\beta}^+ | I_0 \rangle \langle J_{14} | \hat{0}_{\bar\beta}^+ | J_0 \rangle \langle K_7 | \hat{0}_{\bar\beta}^- | K_0 \rangle \langle L_7 | \hat{0}_{\bar\beta}^- | L_0 \rangle t_{A_1, B_1} t_{I_{14}, L_7} t_{J_{14}, K_7}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^K 0^L \rangle \langle I_{14} | \hat{0}_{\bar\beta}^+ | I_0 \rangle \langle J_{14} | \hat{0}_{\bar\beta}^+ | J_0 \rangle \langle K_7 | \hat{0}_{\bar\beta}^- | K_0 \rangle \langle L_7 | \hat{0}_{\bar\beta}^- | L_0 \rangle t_{A_1} t_{B_1} t_{I_{14}, K_7} t_{J_{14}, L_7}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^L 0^K \rangle \langle I_{14} | \hat{0}_{\bar\beta}^+ | I_0 \rangle \langle J_{14} | \hat{0}_{\bar\beta}^+ | J_0 \rangle \langle K_7 | \hat{0}_{\bar\beta}^- | K_0 \rangle \langle L_7 | \hat{0}_{\bar\beta}^- | L_0 \rangle t_{A_1} t_{B_1} t_{I_{14}, K_7} t_{J_{14}, L_7}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^K 0^L \rangle \langle I_{14} | \hat{0}_{\bar\beta}^+ | I_0 \rangle \langle J_{14} | \hat{0}_{\bar\beta}^+ | J_0 \rangle \langle K_7 | \hat{0}_{\bar\beta}^- | K_0 \rangle \langle L_7 | \hat{0}_{\bar\beta}^- | L_0 \rangle t_{A_1} t_{B_1} t_{I_{14}, L_7} t_{J_{14}, K_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_{14},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{14},K_9,L_7)\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_{14},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_{14},L_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{12},K_9,L_{10})\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{12},K_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{12},K_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{12},K_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{12},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_{14},K_7,L_8)\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_{14},K_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_{14},K_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_{14},K_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{14}, K_9, L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_{14},L_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{12}, K_{10}, L_9)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_{14}, K_8, L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_{14},K_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_{14},K_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_{14},K_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{14}, K_{10}, L_7)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{14},L_7}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{14},L_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{12},K_{10},L_{10})\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{12},L_{10}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{12},L_{10}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{12},K_{10}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{12},K_{10}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{12},L_{10}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{12},L_{10}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{12},K_{10}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{12},K_{10}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_{14},K_8,L_8)\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_{14},L_8}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_{14},L_8}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_{14},K_8}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_{14},K_8}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_{14},L_8}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_{14},L_8}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_{14},K_8}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_{14},K_8}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{14},K_{10},L_8)\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{14},L_8}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{14},L_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{11}, K_9, L_9)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 0^L\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_{12},K_9} t_{J_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 0^K\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_{12},K_9} t_{J_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 0^L\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_{12},L_9} t_{J_{11},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 0^K\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_{12},L_9} t_{J_{11},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 0^L\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},K_9} t_{J_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 0^K\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},K_9} t_{J_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 0^L\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},L_9} t_{J_{11},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 0^K\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},L_9} t_{J_{11},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_{13}, K_7, L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 0^L\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle \langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1} t_{I_{14},K_7} t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 0^K\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle \langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1} t_{I_{14},K_7} t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 0^L\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle \langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1} t_{I_{14},L_7} t_{J_{13},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 0^K\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle \langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1} t_{I_{14},L_7} t_{J_{13},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 0^L\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle \langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{14},K_7} t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 0^K\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle \langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{14},K_7} t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 0^L\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle \langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{14},L_7} t_{J_{13},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 0^K\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle \langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{14},L_7} t_{J_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{13}, K_9, L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 0^L\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle \langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1} t_{I_{12},K_9} t_{J_{13},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 0^L\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle \langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},K_9} t_{J_{13},L_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{11}, K_9, L_{10})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{11},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{11},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{11},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{11},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_{13}, K_7, L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_{13},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_{13},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_{13},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{13}, K_9, L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_{13},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_{13},L_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{11}, K_{10}, L_9)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_{11},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_{11},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_{11},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_{11},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_{13},K_8,L_7)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_{13},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{13},K_{10},L_7)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{13},L_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{11},K_{10},L_{10})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{11},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{11},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{11},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{11},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_{13},K_8,L_8)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_{13},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{13},K_{10},L_8)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{13},L_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{12},K_9,L_9)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{12},K_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{12},K_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{12},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{12},K_9}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_{14},K_7,L_7)\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_{14},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_{14},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_{14},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_{14},K_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{14},K_9,L_7)\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{14},L_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{12},K_9,L_{10})\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_{12},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_{12},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_{12},K_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_{12},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_{14},K_7,L_8)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_{14},K_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_{14},K_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_8}t_{J_{14},K_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_8}t_{J_{14},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{14},K_9,L_8)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{14},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{14},L_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{12},K_{10},L_9)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{12},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{12},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{12},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{12},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_{14},K_8,L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_{14},K_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_{14},K_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_{14},K_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_{14},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{14},K_{10},L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_{14},L_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{12},K_{10},L_{10})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_{12},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_{14},K_8,L_8)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_{14},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_{14},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_8}t_{J_{14},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_8}t_{J_{14},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{14},K_{10},L_8)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_{14},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_{14},L_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{11},K_9,L_9)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{11},K_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{11},K_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{11},K_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{11},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_{13},K_7,L_7)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_{13},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_{13},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_{13},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_{13},K_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{13},K_9,L_7)\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{13},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{13},L_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{11},K_9,L_{10})\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_{11},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_{11},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_{11},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_{11},K_9}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_{13},K_7,L_8)\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_{13},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_{13},K_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_8}t_{J_{13},K_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_8}t_{J_{13},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{13},K_9,L_8)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{13},L_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{11},K_{10},L_9)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{11},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{11},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{11},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{11},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_{13},K_8,L_7)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_{13},K_8}$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_{13},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{13},K_{10},L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_{13},L_7}$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_{13},L_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{11},K_{10},L_{10})\rangle =$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_{11},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_{13},K_8,L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_{13},K_8}$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_{13},K_8}$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_8}t_{J_{13},K_8}$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_8}t_{J_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{11}, J_{13}, K_{10}, L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_{13},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_{13},L_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{14}, K_7, L_9)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_{14},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{14}, K_8, L_9)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_{14},K_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{14}, K_7, L_{10})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{14},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{14}, K_8, L_{10})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{14},K_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{13}, K_7, L_9)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_{13},K_7}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_{13},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{13},K_8,L_9)\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_{13},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{13},K_7,L_{10})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{13},K_7}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{13},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{13},K_8,L_{10})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{13},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{14},K_7,L_9)\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{14},K_7}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{14},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{14},K_8,L_9)\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{14},K_8}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{14},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{14},K_7,L_{10})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_{14},K_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_{14},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{14},K_8,L_{10})\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_{14},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_{14},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{13},K_7,L_9)\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{13},K_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{13},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{13},K_8,L_9)\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{13},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{13},K_7,L_{10})\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_{13},K_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_{13},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{13},K_8,L_{10})\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_9, K_{12}, L_9)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{12},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_9,K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{12},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_9,K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_7, K_{14}, L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},J_7}t_{K_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},J_7}t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_7,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}t_{K_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_9, K_{14}, L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{14},L_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_9, K_{12}, L_{10})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_9,K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_9,K_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_7,K_{14},L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},J_7}t_{K_{14},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},J_7}t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_7,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}t_{K_{14},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_7,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_9,K_{14},L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{14},L_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10},K_{12},L_9)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_{12},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_{12},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_{10},K_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_8,K_{14},L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_8,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_8,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10},K_{14},L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_{14},L_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10},K_{12},L_{10})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{10},K_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_8,K_{14},L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_{14},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_8,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_{14},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_8,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10},K_{14},L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_{14},L_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_9,K_{11},L_9)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{11},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_9,K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{11},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_9,K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_7,K_{13},L_7)\rangle=$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_7}t_{K_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_7}t_{K_{13},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_7,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}t_{K_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}t_{K_{13},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_9,K_{13},L_7)\rangle=$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{13},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{13},L_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_9,K_{11},L_{10})\rangle=$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{11},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{11},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_9,K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_7, K_{13}, L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^K|\hat{g}|0^J 1^L\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle \langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1} t_{I_{14},J_7} t_{K_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^L 1^K\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle \langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1} t_{I_{14},J_7} t_{K_{13},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^K|\hat{g}|0^J 1^L\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle \langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1} t_{I_{14},L_8} t_{J_7,K_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^L 1^K\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle \langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1} t_{I_{14},L_8} t_{J_7,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^K|\hat{g}|0^J 1^L\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle \langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{14},J_7} t_{K_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^L 1^K\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle \langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{14},J_7} t_{K_{13},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^K|\hat{g}|0^J 1^L\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle \langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{14},L_8} t_{J_7,K_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^L 1^K\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle \langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{14},L_8} t_{J_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_9, K_{13}, L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^K|\hat{g}|0^J 1^L\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle \langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1} t_{I_{12},J_9} t_{K_{13},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^K|\hat{g}|0^J 1^L\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle \langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},J_9} t_{K_{13},L_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{10}, K_{11}, L_9)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^K|\hat{g}|1^J 0^L\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle \langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{12},J_{10}} t_{K_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 1^K\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle \langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{12},J_{10}} t_{K_{11},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^K|\hat{g}|1^J 0^L\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle \langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{12},L_9} t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 1^K\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle \langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{12},L_9} t_{J_{10},K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^K|\hat{g}|1^J 0^L\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle \langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},J_{10}} t_{K_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 1^K\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle \langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},J_{10}} t_{K_{11},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^K|\hat{g}|1^J 0^L\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle \langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},L_9} t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 1^K\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle \langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},L_9} t_{J_{10},K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_8, K_{13}, L_7)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_8,K_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_8,K_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_8,K_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_8,K_{13}}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10},K_{13},L_7)\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_{13},L_7}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10},K_{11},L_{10})\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{10},K_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_{10},K_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{10},K_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_{10},K_{11}}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_8,K_{13},L_8)\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_8,K_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_8,K_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_8,K_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_8,K_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10},K_{13},L_8)\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_{12}|\hat{0}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_{12}|\hat{0}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_{13},L_8}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_{12},L_9)\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_{12},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_9,K_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_9,K_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_{12},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_9,K_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_9,K_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_7,K_{14},L_7)\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},J_7}t_{K_{14},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},J_7}t_{K_{14},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_7,K_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_7,K_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_7}t_{K_{14},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_7}t_{K_{14},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_7,K_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_7,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_{14},L_7)\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_{14},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_{14},L_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_{12},L_{10})\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_{12},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_9,K_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_9,K_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_{12},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_9,K_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_9,K_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_7,K_{14},L_8)\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},J_7}t_{K_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},J_7}t_{K_{14},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_7,K_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_7,K_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_7}t_{K_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_7}t_{K_{14},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_8}t_{J_7,K_{14}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_8}t_{J_7,K_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_{14},L_8)\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_{14},L_8}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_{14},L_8}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{10},K_{12},L_9)\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_{12},L_9}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_{12},L_9}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{10},K_{12}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{10},K_{12}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_{12},L_9}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_{12},L_9}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{10},K_{12}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{10},K_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_8,K_{14},L_7)\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},J_8}t_{K_{14},L_7}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},J_8}t_{K_{14},L_7}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_8,K_{14}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_8,K_{14}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}t_{K_{14},L_7}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}t_{K_{14},L_7}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_8,K_{14}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{11}, J_{10}, K_{14}, L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1} t_{I_{11},J_{10}} t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{11},J_{10}} t_{K_{14},L_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{11}, J_{10}, K_{12}, L_{10})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{11},J_{10}} t_{K_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^-_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{11},J_{10}} t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{11},L_{10}} t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{11},L_{10}} t_{J_{10},K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{11},J_{10}} t_{K_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{11},J_{10}} t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{11},L_{10}} t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{11},L_{10}} t_{J_{10},K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{13}, J_8, K_{14}, L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1} t_{I_{13},J_8} t_{K_{14},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1} t_{I_{13},J_8} t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1} t_{I_{13},L_8} t_{J_8,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1} t_{I_{13},L_8} t_{J_8,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{13},J_8} t_{K_{14},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{13},J_8} t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{13},L_8} t_{J_8,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{13},L_8} t_{J_8,K_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{11}, J_{10}, K_{14}, L_8) \rangle =$$

$$+ \frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^K | \hat{g} | 1^J 1^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle \langle L_8 | \hat{1}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{11}, J_{10}} t_{K_{14}, L_8}$$

$$+ \frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^K | \hat{g} | 1^J 1^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle \langle L_8 | \hat{1}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, J_{10}} t_{K_{14}, L_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{11}, J_9, K_{11}, L_9) \rangle =$$

$$+ \frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle \langle L_9 | \hat{0}^-_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{11}, J_9} t_{K_{11}, L_9}$$

$$+ \frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle \langle L_9 | \hat{0}^-_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{11}, J_9} t_{K_{11}, L_9}$$

$$+ \frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle \langle L_9 | \hat{0}^-_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{11}, L_9} t_{J_9, K_{11}}$$

$$+ \frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle \langle L_9 | \hat{0}^-_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{11}, L_9} t_{J_9, K_{11}}$$

$$+ \frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle \langle L_9 | \hat{0}^-_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, J_9} t_{K_{11}, L_9}$$

$$+ \frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle \langle L_9 | \hat{0}^-_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, J_9} t_{K_{11}, L_9}$$

$$+ \frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle \langle L_9 | \hat{0}^-_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, L_9} t_{J_9, K_{11}}$$

$$+ \frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle \langle L_9 | \hat{0}^-_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, L_9} t_{J_9, K_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{13}, J_7, K_{13}, L_7) \rangle =$$

$$+ \frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, J_7} t_{K_{13}, L_7}$$

$$+ \frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, J_7} t_{K_{13}, L_7}$$

$$+ \frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, L_7} t_{J_7, K_{13}}$$

$$+ \frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, L_7} t_{J_7, K_{13}}$$

$$+ \frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7} t_{K_{13}, L_7}$$

$$+ \frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7} t_{K_{13}, L_7}$$

$$+ \frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, L_7} t_{J_7, K_{13}}$$

$$+ \frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, L_7} t_{J_7, K_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{11}, J_9, K_{13}, L_7) \rangle =$$

$$+ \frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{11}, J_9} t_{K_{13}, L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_{13},L_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_{11},L_{10})\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_{11},L_{10}}$$
$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_{11},L_{10}}$$
$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_9,K_{11}}$$
$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_9,K_{11}}$$
$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_{11},L_{10}}$$
$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_{11},L_{10}}$$
$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_9,K_{11}}$$
$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_9,K_{11}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_7,K_{13},L_8)\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},J_7}t_{K_{13},L_8}$$
$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},J_7}t_{K_{13},L_8}$$
$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_7,K_{13}}$$
$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_7,K_{13}}$$
$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_7}t_{K_{13},L_8}$$
$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_7}t_{K_{13},L_8}$$
$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_8}t_{J_7,K_{13}}$$
$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_8}t_{J_7,K_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_{13},L_8)\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_{13},L_8}$$
$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_{13},L_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{11}, J_{10}, K_{11}, L_9)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_{11},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_{11},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_{10},K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{13}, J_8, K_{13}, L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},J_8}t_{K_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},J_8}t_{K_{13},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_8,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}t_{K_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}t_{K_{13},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_8,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{11}, J_{10}, K_{13}, L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_{13},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_{13},L_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{11}, J_{10}, K_{11}, L_{10})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_{10},K_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_{10},K_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_{10},K_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_{10},K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_8,K_{13},L_8)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},J_8}t_{K_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},J_8}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_8,K_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_8,K_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}t_{K_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_8}t_{J_8,K_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_8}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{10},K_{13},L_8)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_{13},L_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_7,K_{14},L_9)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_9}t_{J_7,K_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_9}t_{J_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_8, K_{14}, L_9)\rangle =$$

$$+\tfrac{-1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{12},L_9} t_{J_8,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},L_9} t_{J_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_7, K_{14}, L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{12},L_{10}} t_{J_7,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},L_{10}} t_{J_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_8, K_{14}, L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{12},L_{10}} t_{J_8,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},L_{10}} t_{J_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_7, K_{13}, L_9)\rangle =$$

$$+\tfrac{-1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{12},L_9} t_{J_7,K_{13}}$$

$$+\tfrac{-1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},L_9} t_{J_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_8, K_{13}, L_9)\rangle =$$

$$+\tfrac{-1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{12},L_9} t_{J_8,K_{13}}$$

$$+\tfrac{-1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},L_9} t_{J_8,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_7, K_{13}, L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{12},L_{10}} t_{J_7,K_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_8,K_{13},L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},L_{10}}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},L_{10}}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_7,K_{14},L_9)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_8,K_{14},L_9)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_7,K_{14},L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_8,K_{14},L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_7,K_{13},L_9)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_8,K_{13},L_9)\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{11},L_9}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_9}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_7,K_{13},L_{10})\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_8,K_{13},L_{10})\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{11},L_{10}}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},L_{10}}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_9,K_9,L_{12})\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_9,L_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_7, K_7, L_{14})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{14},J_7}t_{K_7,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{14},J_7}t_{K_7,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}t_{K_7,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}t_{K_7,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_7,L_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_9, K_7, L_{14})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_7,L_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_9, K_{10}, L_{12})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{10},L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{10},L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_9,L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_9,L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{10},L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{10},L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_9,L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_9,L_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_7, K_8, L_{14})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{14},J_7}t_{K_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{14},J_7}t_{K_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}t_{K_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}t_{K_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_7,L_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_9,K_8,L_{14})\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_8,L_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10},K_9,L_{12})\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_{10},L_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_8,K_7,L_{14})\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_8,L_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10},K_7,L_{14})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_7,L_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10},K_{10},L_{12})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_{10},L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_{10},L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_{10},L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_{10},L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{10},L_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_8,K_8,L_{14})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_8,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_8,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_8,L_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_{10},K_8,L_{14})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_8,L_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_9,K_9,L_{11})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_9,L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_9,L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_9,L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_9,L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_9,L_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_7,K_7,L_{13})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_7}t_{K_7,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_7}t_{K_7,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}t_{K_7,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}t_{K_7,L_{13}}$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_7,L_{13}}$$
$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_7,L_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_9,K_7,L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_7,L_{13}}$$
$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_7,L_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{12},J_9,K_{10},L_{11})\rangle =$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{10},L_{11}}$$
$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_{10},L_{11}}$$
$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_9,L_{11}}$$
$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_9,L_{11}}$$
$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{10},L_{11}}$$
$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_{10},L_{11}}$$
$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_9,L_{11}}$$
$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_9,L_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_7,K_8,L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_7}t_{K_8,L_{13}}$$
$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_7}t_{K_8,L_{13}}$$
$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_7,L_{13}}$$
$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_7,L_{13}}$$
$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}t_{K_8,L_{13}}$$
$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_7}t_{K_8,L_{13}}$$
$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_7,L_{13}}$$
$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_7,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_9, K_8, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},J_9}t_{K_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9}t_{K_8,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{10}, K_9, L_{11})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_9,L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_9,L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_9,L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_9,L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_{10},L_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_8, K_7, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_7,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_7,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_7,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_7,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_8,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{10}, K_7, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_7,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{10}, K_{10}, L_{11})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_{10},L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_{10},L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_{10},L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_{10},L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_{10},L_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_8, K_8, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},J_8}t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},J_8}t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_8,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_{10}, K_8, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}}t_{K_8,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}}t_{K_8,L_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_9,L_{12})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_9,L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_9,L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_9,L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_9,L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_9,L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_9,L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_9,L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_9,L_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_7,K_7,L_{14})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},J_7}t_{K_7,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},J_7}t_{K_7,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_7}t_{K_7,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_7}t_{K_7,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_7,L_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_7,L_{14})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_7,L_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{11}, J_9, K_{10}, L_{12}) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{11}, J_9} t_{K_{10}, L_{12}}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^K 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{11}, J_9} t_{K_{10}, L_{12}}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{11}, K_{10}} t_{J_9, L_{12}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^K 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{11}, K_{10}} t_{J_9, L_{12}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, J_9} t_{K_{10}, L_{12}}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^K 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, J_9} t_{K_{10}, L_{12}}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, K_{10}} t_{J_9, L_{12}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^K 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, K_{10}} t_{J_9, L_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{13}, J_7, K_8, L_{14}) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle \langle L_{14} | \hat{0}^+_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, J_7} t_{K_8, L_{14}}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^K 0^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle \langle L_{14} | \hat{0}^+_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, J_7} t_{K_8, L_{14}}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle \langle L_{14} | \hat{0}^+_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, K_8} t_{J_7, L_{14}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^K 0^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle \langle L_{14} | \hat{0}^+_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, K_8} t_{J_7, L_{14}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle \langle L_{14} | \hat{0}^+_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7} t_{K_8, L_{14}}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^K 0^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle \langle L_{14} | \hat{0}^+_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7} t_{K_8, L_{14}}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle \langle L_{14} | \hat{0}^+_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, K_8} t_{J_7, L_{14}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^K 0^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle \langle L_{14} | \hat{0}^+_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, K_8} t_{J_7, L_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{11}, J_9, K_8, L_{14}) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle \langle L_{14} | \hat{0}^+_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{11}, J_9} t_{K_8, L_{14}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle \langle L_{14} | \hat{0}^+_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, J_9} t_{K_8, L_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{11}, J_{10}, K_9, L_{12}) \rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_9,L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_9,L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_9,L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_9,L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{10},L_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_8,K_7,L_{14})\rangle =$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},J_8}t_{K_7,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},J_8}t_{K_7,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}t_{K_7,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}t_{K_7,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_8,L_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{10},K_7,L_{14})\rangle =$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_7,L_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{10},K_{10},L_{12})\rangle =$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_{10},L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_{10},L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_{10},L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_{10},L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_{10},L_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_8,K_8,L_{14})\rangle=$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},J_8}t_{K_8,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},J_8}t_{K_8,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}t_{K_8,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}t_{K_8,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_8,L_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{10},K_8,L_{14})\rangle=$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J0^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_8,L_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_9,L_{11})\rangle=$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_9,L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_9,L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_9,L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_9,L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_9,L_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_7,K_7,L_{13})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},J_7}t_{K_7,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},J_7}t_{K_7,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_7}t_{K_7,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_7}t_{K_7,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_7,L_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_7,L_{13})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_7,L_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_{10},L_{11})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_{10},L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_{10},L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_{10},L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_{10},L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_9,L_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_7,K_8,L_{13})\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},J_7}t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},J_7}t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_7}t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_7}t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_7,L_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_9,K_8,L_{13})\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},J_9}t_{K_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9}t_{K_8,L_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_{10},K_9,L_{11})\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_9,L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},J_{10}}t_{K_9,L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_9,L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_{10}}t_{K_9,L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_{10},L_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{13}, J_8, K_7, L_{13}) \rangle =$$

$$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^K | \hat{g} | 1^J 1^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle \langle L_{13} | \hat{1}^+_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, J_8} t_{K_7, L_{13}}$$

$$+\frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle \langle L_{13} | \hat{1}^+_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, J_8} t_{K_7, L_{13}}$$

$$+\frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^K | \hat{g} | 1^J 1^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle \langle L_{13} | \hat{1}^+_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, K_7} t_{J_8, L_{13}}$$

$$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle \langle L_{13} | \hat{1}^+_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, K_7} t_{J_8, L_{13}}$$

$$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^K | \hat{g} | 1^J 1^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle \langle L_{13} | \hat{1}^+_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_8} t_{K_7, L_{13}}$$

$$+\frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle \langle L_{13} | \hat{1}^+_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_8} t_{K_7, L_{13}}$$

$$+\frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^K | \hat{g} | 1^J 1^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle \langle L_{13} | \hat{1}^+_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, K_7} t_{J_8, L_{13}}$$

$$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle \langle L_{13} | \hat{1}^+_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, K_7} t_{J_8, L_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{11}, J_{10}, K_7, L_{13}) \rangle =$$

$$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^K | \hat{g} | 1^J 1^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle \langle L_{13} | \hat{1}^+_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{11}, J_{10}} t_{K_7, L_{13}}$$

$$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^K | \hat{g} | 1^J 1^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle \langle L_{13} | \hat{1}^+_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, J_{10}} t_{K_7, L_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{11}, J_{10}, K_{10}, L_{11}) \rangle =$$

$$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 1^J 1^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{11} | \hat{1}^+_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{11}, J_{10}} t_{K_{10}, L_{11}}$$

$$+\frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J | \hat{g} | 1^K 1^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{11} | \hat{1}^+_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{11}, J_{10}} t_{K_{10}, L_{11}}$$

$$+\frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 1^J 1^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{11} | \hat{1}^+_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{11}, K_{10}} t_{J_{10}, L_{11}}$$

$$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J | \hat{g} | 1^K 1^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{11} | \hat{1}^+_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{11}, K_{10}} t_{J_{10}, L_{11}}$$

$$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 1^J 1^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{11} | \hat{1}^+_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, J_{10}} t_{K_{10}, L_{11}}$$

$$+\frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J | \hat{g} | 1^K 1^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{11} | \hat{1}^+_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, J_{10}} t_{K_{10}, L_{11}}$$

$$+\frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 1^J 1^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{11} | \hat{1}^+_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, K_{10}} t_{J_{10}, L_{11}}$$

$$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J | \hat{g} | 1^K 1^L \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{11} | \hat{1}^+_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{11}, K_{10}} t_{J_{10}, L_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{13}, J_8, K_8, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_{13},J_8} t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_{13},J_8} t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_{13},K_8} t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_{13},K_8} t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{13},J_8} t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{13},J_8} t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{13},K_8} t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{13},K_8} t_{J_8,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{11}, J_{10}, K_8, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_{11},J_{10}} t_{K_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{11},J_{10}} t_{K_8,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_7, K_9, L_{14})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_{12},K_9} t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},K_9} t_{J_7,L_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_8, K_9, L_{14})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_{12},K_9} t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},K_9} t_{J_8,L_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_7, K_{10}, L_{14})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_{12},K_{10}} t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{12},K_{10}} t_{J_7,L_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_8, K_{10}, L_{14})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_8,L_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_7, K_9, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_7,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_8, K_9, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},K_9}t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_9}t_{J_8,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_7, K_{10}, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_7,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{12}, J_8, K_{10}, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{12},K_{10}}t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{12},K_{10}}t_{J_8,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{11}, J_7, K_9, L_{14})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_7,L_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_8,K_9,L_{14})\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_8,L_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_7,K_{10},L_{14})\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_7,L_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_8,K_{10},L_{14})\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_8,L_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_7,K_9,L_{13})\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_7,L_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_8,K_9,L_{13})\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_9}t_{J_8,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_9}t_{J_8,L_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{11},J_7,K_{10},L_{13})\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_7,L_{13}}$$

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$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{11},K_{10}}t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{11},K_{10}}t_{J_8,L_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_{12},K_9,L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_{12},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_{12},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_{12},K_9,L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_{12},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_{12},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_{12},K_{10},L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_{12},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_{12},K_{10},L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_{12},K_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{13}, J_{12}, K_9, L_7) \rangle =$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 0^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_{12} | \hat{0}^+_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, L_7} t_{J_{12}, K_9}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 0^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_{12} | \hat{0}^+_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, L_7} t_{J_{12}, K_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{13}, J_{12}, K_9, L_8) \rangle =$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^L 0^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_{12} | \hat{0}^+_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle \langle L_8 | \hat{1}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, L_8} t_{J_{12}, K_9}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^L 0^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_{12} | \hat{0}^+_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle \langle L_8 | \hat{1}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, L_8} t_{J_{12}, K_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{13}, J_{12}, K_{10}, L_7) \rangle =$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_{12} | \hat{0}^+_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, L_7} t_{J_{12}, K_{10}}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_{12} | \hat{0}^+_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, L_7} t_{J_{12}, K_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{13}, J_{12}, K_{10}, L_8) \rangle =$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^L 1^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_{12} | \hat{0}^+_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_8 | \hat{1}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, L_8} t_{J_{12}, K_{10}}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^L 1^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_{12} | \hat{0}^+_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_8 | \hat{1}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, L_8} t_{J_{12}, K_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{14}, J_{11}, K_9, L_7) \rangle =$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J | \hat{g} | 0^L 0^K \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_{11} | \hat{1}^+_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{14}, L_7} t_{J_{11}, K_9}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J | \hat{g} | 0^L 0^K \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_{11} | \hat{1}^+_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{14}, L_7} t_{J_{11}, K_9}$$

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$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J | \hat{g} | 1^L 0^K \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_{11} | \hat{1}^+_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle \langle L_8 | \hat{1}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{14}, L_8} t_{J_{11}, K_9}$$

$$+ \tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J | \hat{g} | 1^L 0^K \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_{11} | \hat{1}^+_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle \langle L_8 | \hat{1}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{14}, L_8} t_{J_{11}, K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_{11}, K_{10}, L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_{11}, K_{10}, L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{48}\sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{13}, J_{11}, K_9, L_7)\rangle =$$

$$+\tfrac{1}{48}\sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_{11},K_9}$$

$$+\tfrac{1}{48}\sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_{11},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{13}, J_{11}, K_9, L_8)\rangle =$$

$$+\tfrac{1}{48}\sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_{13},L_8}t_{J_{11},K_9}$$

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$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_{12}, K_7, L_9)\rangle =$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J |\hat{g}| 0^K 0^L\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_{14},K_7} t_{J_{12},L_9}$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J |\hat{g}| 0^K 0^L\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{14},K_7} t_{J_{12},L_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_{12}, K_8, L_9)\rangle =$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J |\hat{g}| 1^K 0^L\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_{14},K_8} t_{J_{12},L_9}$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J |\hat{g}| 1^K 0^L\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{14},K_8} t_{J_{12},L_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_{12}, K_7, L_{10})\rangle =$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J |\hat{g}| 0^K 1^L\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle \langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_{14},K_7} t_{J_{12},L_{10}}$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J |\hat{g}| 0^K 1^L\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle \langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{14},K_7} t_{J_{12},L_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_{12}, K_8, L_{10})\rangle =$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J |\hat{g}| 1^K 1^L\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle \langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_{14},K_8} t_{J_{12},L_{10}}$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J |\hat{g}| 1^K 1^L\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle \langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{14},K_8} t_{J_{12},L_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{13}, J_{12}, K_7, L_9)\rangle =$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J |\hat{g}| 0^K 0^L\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_{13},K_7} t_{J_{12},L_9}$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J |\hat{g}| 0^K 0^L\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{13},K_7} t_{J_{12},L_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{13}, J_{12}, K_8, L_9)\rangle =$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J |\hat{g}| 1^K 0^L\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle \langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_{13},K_8} t_{J_{12},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_{12},L_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_{12},K_7,L_{10})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_{12},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_{12},L_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_{12},K_8,L_{10})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_{12},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_{12},L_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_{11},K_7,L_9)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_{11},L_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_{11},K_8,L_9)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_{11},L_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_{11},K_7,L_{10})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K1^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K1^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_{11},L_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_{11},K_8,L_{10})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{14},K_8}t_{J_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_8}t_{J_{11},L_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_{11},K_7,L_9)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_{11},L_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_{11},K_8,L_9)\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_{11},L_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_{11},K_7,L_{10})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{13},K_7}t_{J_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_7}t_{J_{11},L_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_{11},K_8,L_{10})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_{11},L_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_{12},L_9)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{12},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{12},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{12},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{12},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_{12},L_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{14},K_{14},L_7)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_{14},L_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_{14},L_7)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{14},L_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_{12},L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{12},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_{12},L_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{14},K_{14},L_8)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_{14},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_{14},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_{14},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_{14},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_{14},L_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_{14},L_8)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{14},L_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{12},K_{12},L_9)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_{12},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_{12},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{12}}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{12}}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_{12},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_{12},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{12}}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{12}}t_{J_{12},L_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_{14}, K_{14}, L_7)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_{14},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_{14},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_{14},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_{14},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_{14},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_{14},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_{14},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_{14},L_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{12}, K_{14}, L_7)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_{14},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_{14},L_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{12}, K_{12}, L_{10})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_{12},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_{12},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{12}}t_{J_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{12}}t_{J_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_{12},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_{12},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{12}}t_{J_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{12}}t_{J_{12},L_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_{14}, K_{14}, L_8)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_{14},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_{14},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_{14},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_{14},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_{14},L_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{12}, K_{14}, L_8)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_{14},L_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{12}, K_{11}, L_9)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_{12},L_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{14}, K_{13}, L_7)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_{14},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_{14},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_{14},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_{14},L_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_{13},L_7)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{13},L_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_{11},L_{10})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_{12},L_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{14},K_{13},L_8)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_{14},L_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_{13},L_8)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{13},L_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{12},K_{11},L_9)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_{12},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_{12},L_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{14},K_{13},L_7)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_{14},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_{14},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_{14},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_{14},L_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{12},K_{13},L_7)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_{13},L_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{12},K_{11},L_{10})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_{12},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_{12},L_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{14},K_{13},L_8)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_{14},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_{14},L_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{12},K_{13},L_8)\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_{13},L_8}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_{13},L_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{11},K_{12},L_9)\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_{12},L_9}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_{12},L_9}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_{11},L_9}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_{11},L_9}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_{12},L_9}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_{12},L_9}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_{11},L_9}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_{11},L_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{13},K_{14},L_7)\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_{14},L_7}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_{14},L_7}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_{13},L_7}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_{13},L_7}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_{14},L_7}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_{14},L_7}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_{13},L_7}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_{13},L_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{11}, K_{14}, L_7)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_{14},L_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{11}, K_{12}, L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_{11},L_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{13}, K_{14}, L_8)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_{13},L_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{11}, K_{14}, L_8)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat g|1^J1^L\rangle\langle I_9|\hat 0_\alpha^-|I_0\rangle\langle J_{11}|\hat 1_\alpha^+|J_0\rangle\langle K_{14}|\hat 0_\beta^+|K_0\rangle\langle L_8|\hat 1_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_{14},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat g|1^J1^L\rangle\langle I_9|\hat 0_\alpha^-|I_0\rangle\langle J_{11}|\hat 1_\alpha^+|J_0\rangle\langle K_{14}|\hat 0_\beta^+|K_0\rangle\langle L_8|\hat 1_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_{14},L_8}$$

$\langle(A_1,B_1)|\hat H|(A_1,B_1,I_{10},J_{11},K_{12},L_9)\rangle =$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat g|1^J0^L\rangle\langle I_{10}|\hat 1_\alpha^-|I_0\rangle\langle J_{11}|\hat 1_\alpha^+|J_0\rangle\langle K_{12}|\hat 0_\alpha^+|K_0\rangle\langle L_9|\hat 0_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_{12},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat g|0^K0^L\rangle\langle I_{10}|\hat 1_\alpha^-|I_0\rangle\langle J_{11}|\hat 1_\alpha^+|J_0\rangle\langle K_{12}|\hat 0_\alpha^+|K_0\rangle\langle L_9|\hat 0_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_{12},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat g|1^J0^L\rangle\langle I_{10}|\hat 1_\alpha^-|I_0\rangle\langle J_{11}|\hat 1_\alpha^+|J_0\rangle\langle K_{12}|\hat 0_\alpha^+|K_0\rangle\langle L_9|\hat 0_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{12}}t_{J_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat g|0^K0^L\rangle\langle I_{10}|\hat 1_\alpha^-|I_0\rangle\langle J_{11}|\hat 1_\alpha^+|J_0\rangle\langle K_{12}|\hat 0_\alpha^+|K_0\rangle\langle L_9|\hat 0_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{12}}t_{J_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat g|1^J0^L\rangle\langle I_{10}|\hat 1_\alpha^-|I_0\rangle\langle J_{11}|\hat 1_\alpha^+|J_0\rangle\langle K_{12}|\hat 0_\alpha^+|K_0\rangle\langle L_9|\hat 0_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_{12},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat g|0^K0^L\rangle\langle I_{10}|\hat 1_\alpha^-|I_0\rangle\langle J_{11}|\hat 1_\alpha^+|J_0\rangle\langle K_{12}|\hat 0_\alpha^+|K_0\rangle\langle L_9|\hat 0_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_{12},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat g|1^J0^L\rangle\langle I_{10}|\hat 1_\alpha^-|I_0\rangle\langle J_{11}|\hat 1_\alpha^+|J_0\rangle\langle K_{12}|\hat 0_\alpha^+|K_0\rangle\langle L_9|\hat 0_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{12}}t_{J_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat g|0^K0^L\rangle\langle I_{10}|\hat 1_\alpha^-|I_0\rangle\langle J_{11}|\hat 1_\alpha^+|J_0\rangle\langle K_{12}|\hat 0_\alpha^+|K_0\rangle\langle L_9|\hat 0_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{12}}t_{J_{11},L_9}$$

$\langle(A_1,B_1)|\hat H|(A_1,B_1,I_8,J_{13},K_{14},L_7)\rangle =$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat g|1^J0^L\rangle\langle I_8|\hat 1_\beta^-|I_0\rangle\langle J_{13}|\hat 1_\beta^+|J_0\rangle\langle K_{14}|\hat 0_\beta^+|K_0\rangle\langle L_7|\hat 0_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat g|0^K0^L\rangle\langle I_8|\hat 1_\beta^-|I_0\rangle\langle J_{13}|\hat 1_\beta^+|J_0\rangle\langle K_{14}|\hat 0_\beta^+|K_0\rangle\langle L_7|\hat 0_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat g|1^J0^L\rangle\langle I_8|\hat 1_\beta^-|I_0\rangle\langle J_{13}|\hat 1_\beta^+|J_0\rangle\langle K_{14}|\hat 0_\beta^+|K_0\rangle\langle L_7|\hat 0_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat g|0^K0^L\rangle\langle I_8|\hat 1_\beta^-|I_0\rangle\langle J_{13}|\hat 1_\beta^+|J_0\rangle\langle K_{14}|\hat 0_\beta^+|K_0\rangle\langle L_7|\hat 0_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat g|1^J0^L\rangle\langle I_8|\hat 1_\beta^-|I_0\rangle\langle J_{13}|\hat 1_\beta^+|J_0\rangle\langle K_{14}|\hat 0_\beta^+|K_0\rangle\langle L_7|\hat 0_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat g|0^K0^L\rangle\langle I_8|\hat 1_\beta^-|I_0\rangle\langle J_{13}|\hat 1_\beta^+|J_0\rangle\langle K_{14}|\hat 0_\beta^+|K_0\rangle\langle L_7|\hat 0_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_{14},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat g|1^J0^L\rangle\langle I_8|\hat 1_\beta^-|I_0\rangle\langle J_{13}|\hat 1_\beta^+|J_0\rangle\langle K_{14}|\hat 0_\beta^+|K_0\rangle\langle L_7|\hat 0_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat g|0^K0^L\rangle\langle I_8|\hat 1_\beta^-|I_0\rangle\langle J_{13}|\hat 1_\beta^+|J_0\rangle\langle K_{14}|\hat 0_\beta^+|K_0\rangle\langle L_7|\hat 0_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_{13},L_7}$$

$\langle(A_1,B_1)|\hat H|(A_1,B_1,I_{10},J_{11},K_{14},L_7)\rangle =$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat g|1^J0^L\rangle\langle I_{10}|\hat 1_\alpha^-|I_0\rangle\langle J_{11}|\hat 1_\alpha^+|J_0\rangle\langle K_{14}|\hat 0_\beta^+|K_0\rangle\langle L_7|\hat 0_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat g|1^J0^L\rangle\langle I_{10}|\hat 1_\alpha^-|I_0\rangle\langle J_{11}|\hat 1_\alpha^+|J_0\rangle\langle K_{14}|\hat 0_\beta^+|K_0\rangle\langle L_7|\hat 0_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_{14},L_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{11}, K_{12}, L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle \langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_{10},J_{11}} t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^K 1^L\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle \langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_{10},J_{11}} t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle \langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_{10},K_{12}} t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^K 1^L\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle \langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_{10},K_{12}} t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle \langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},J_{11}} t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^K 1^L\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle \langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},J_{11}} t_{K_{12},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle \langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},K_{12}} t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^K 1^L\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle \langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},K_{12}} t_{J_{11},L_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_{13}, K_{14}, L_8)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle \langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1} t_{I_8,J_{13}} t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^K 1^L\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle \langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1} t_{I_8,J_{13}} t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle \langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1} t_{I_8,K_{14}} t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^K 1^L\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle \langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1} t_{I_8,K_{14}} t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle \langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1} t_{B_1} t_{I_8,J_{13}} t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^K 1^L\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle \langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1} t_{B_1} t_{I_8,J_{13}} t_{K_{14},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle \langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1} t_{B_1} t_{I_8,K_{14}} t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^K 1^L\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle \langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1} t_{B_1} t_{I_8,K_{14}} t_{J_{13},L_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{11}, K_{14}, L_8)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle \langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1} t_{I_{10},J_{11}} t_{K_{14},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|1^J 1^L\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle \langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},J_{11}} t_{K_{14},L_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{11}, K_{11}, L_9)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_{11},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_{11},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_{11},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_{11},L_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_{11},L_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{13}, K_{13}, L_7)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_{13},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_{13},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_{13},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_{13},L_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_{13},L_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{11}, K_{13}, L_7)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_7|\hat{0}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_{13},L_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{11}, K_{11}, L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_{11},L_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{13},K_{13},L_8)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_{13},L_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_{13},L_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{11},K_{13},L_8)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_{13},L_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_8|\hat{1}^-_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_{13},L_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11},K_{11},L_9)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_{11},L_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_{11},L_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{13},K_{13},L_7)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_{13},L_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_{13},L_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11},K_{13},L_7)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_{13},L_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_{13},L_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11},K_{11},L_{10})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_{11},L_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_{11},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_{11},L_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_{11},L_{10}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{13},K_{13},L_8)\rangle=$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_{13},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_{13},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_{13},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_{13},L_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_{13},L_8}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11},K_{13},L_8)\rangle=$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_{13},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_{13},L_8}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{12},K_{14},L_9)\rangle=$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_{12},L_9}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{12},K_{14},L_9)\rangle=$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_{12},L_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{12}, K_{14}, L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_{12},L_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_{12}, K_{14}, L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_{12},L_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{12}, K_{13}, L_9)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_{12},L_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_{12}, K_{13}, L_9)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_{12},L_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_{12},L_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{12}, K_{13}, L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_{12},L_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_{12}, K_{13}, L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_{12},L_{10}}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_{12},L_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{11},K_{14},L_9)\rangle =$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_{11},L_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{11},K_{14},L_9)\rangle =$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_{11},L_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{11},K_{14},L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_{11},L_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{11},K_{14},L_{10})\rangle =$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_{11},L_{10}}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{10}|\hat{1}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_{11},L_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{11},K_{13},L_9)\rangle =$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_{11},L_9}$$

$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_9|\hat{0}^-_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_{11},L_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{11},K_{13},L_9)\rangle =$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_{11},L_9}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_{11},L_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{11},K_{13},L_{10})\rangle =$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_{11},L_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{11},K_{13},L_{10})\rangle =$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_{11},L_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_9,L_{12})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_9,L_{12}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_9,L_{12}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{12}}t_{J_{12},K_9}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{12}}t_{J_{12},K_9}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_9,L_{12}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_9,L_{12}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{12}}t_{J_{12},K_9}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{12}}t_{J_{12},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{14},K_7,L_{14})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_7,L_{14}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_7,L_{14}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_{14},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle\langle K_7|\hat{0}_{\bar\beta}^-|K_0\rangle\langle L_{14}|\hat{0}_{\bar\beta}^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_{14},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J0^L\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle\langle K_7|\hat{0}_{\bar\beta}^-|K_0\rangle\langle L_{14}|\hat{0}_{\bar\beta}^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle\langle K_7|\hat{0}_{\bar\beta}^-|K_0\rangle\langle L_{14}|\hat{0}_{\bar\beta}^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J0^L\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle\langle K_7|\hat{0}_{\bar\beta}^-|K_0\rangle\langle L_{14}|\hat{0}_{\bar\beta}^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_{14},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L0^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle\langle K_7|\hat{0}_{\bar\beta}^-|K_0\rangle\langle L_{14}|\hat{0}_{\bar\beta}^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_{14},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_7,L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J0^L\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_7|\hat{0}_{\bar\beta}^-|K_0\rangle\langle L_{14}|\hat{0}_{\bar\beta}^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J0^L\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_7|\hat{0}_{\bar\beta}^-|K_0\rangle\langle L_{14}|\hat{0}_{\bar\beta}^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_7,L_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_{10},L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle\langle L_{12}|\hat{0}_{\alpha}^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle\langle L_{12}|\hat{0}_{\alpha}^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{10},L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle\langle L_{12}|\hat{0}_{\alpha}^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{12}}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle\langle L_{12}|\hat{0}_{\alpha}^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{12}}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle\langle L_{12}|\hat{0}_{\alpha}^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle\langle L_{12}|\hat{0}_{\alpha}^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{10},L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle\langle L_{12}|\hat{0}_{\alpha}^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{12}}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle\langle L_{12}|\hat{0}_{\alpha}^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{12}}t_{J_{12},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{14},K_8,L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle\langle K_8|\hat{1}_{\bar\beta}^-|K_0\rangle\langle L_{14}|\hat{0}_{\bar\beta}^+|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle\langle K_8|\hat{1}_{\bar\beta}^-|K_0\rangle\langle L_{14}|\hat{0}_{\bar\beta}^+|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle\langle K_8|\hat{1}_{\bar\beta}^-|K_0\rangle\langle L_{14}|\hat{0}_{\bar\beta}^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_{14},K_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle\langle K_8|\hat{1}_{\bar\beta}^-|K_0\rangle\langle L_{14}|\hat{0}_{\bar\beta}^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_{14},K_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle\langle K_8|\hat{1}_{\bar\beta}^-|K_0\rangle\langle L_{14}|\hat{0}_{\bar\beta}^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_{14},K_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_{14},K_8}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_8,L_{14})\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_8,L_{14}}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{12},K_9,L_{12})\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_{12},K_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_{12},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_{12},K_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_{12},K_9}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{14},K_7,L_{14})\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_{14},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_{14},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_{14},K_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_{14},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{12},K_7,L_{14})\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_7,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_7,L_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{12},K_{10},L_{12})\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}}t_{K_{10},L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_{12},K_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_{12},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}}t_{K_{10},L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_{12},K_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_{12},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{14},K_8,L_{14})\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_8,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_{14},K_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_{14},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_8,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_{14},K_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_{14},K_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{12}, K_8, L_{14})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_{10},J_{12}} t_{K_8,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},J_{12}} t_{K_8,L_{14}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{12}, K_9, L_{11})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,J_{12}} t_{K_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,J_{12}} t_{K_9,L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,L_{11}} t_{J_{12},K_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,L_{11}} t_{J_{12},K_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,J_{12}} t_{K_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,J_{12}} t_{K_9,L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,L_{11}} t_{J_{12},K_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,L_{11}} t_{J_{12},K_9}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{14}, K_7, L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_7,J_{14}} t_{K_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_7,J_{14}} t_{K_7,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_7,L_{13}} t_{J_{14},K_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_7,L_{13}} t_{J_{14},K_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_7,J_{14}} t_{K_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_7,J_{14}} t_{K_7,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_7,L_{13}} t_{J_{14},K_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_7,L_{13}} t_{J_{14},K_7}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{12}, K_7, L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_7,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_7,L_{13}}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_{10},L_{11})\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{10},L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_{10},L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_{12},K_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_{12},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{10},L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_{10},L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_{12},K_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_{12},K_{10}}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{14},K_8,L_{13})\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_8,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_8,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_{14},K_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_{14},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_8,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_8,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_{14},K_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_{14},K_8}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{12},K_8,L_{13})\rangle =$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{12}}t_{K_8,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{12}}t_{K_8,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{12}, K_9, L_{11})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_{10},J_{12}} t_{K_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_{10},J_{12}} t_{K_9,L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_{10},L_{11}} t_{J_{12},K_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_{10},L_{11}} t_{J_{12},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},J_{12}} t_{K_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},J_{12}} t_{K_9,L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},L_{11}} t_{J_{12},K_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},L_{11}} t_{J_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_{14}, K_7, L_{13})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_8,J_{14}} t_{K_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_8,J_{14}} t_{K_7,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_8,L_{13}} t_{J_{14},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_8,L_{13}} t_{J_{14},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_8,J_{14}} t_{K_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_8,J_{14}} t_{K_7,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_8,L_{13}} t_{J_{14},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_8,L_{13}} t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{12}, K_7, L_{13})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_{10},J_{12}} t_{K_7,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},J_{12}} t_{K_7,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{12}, K_{10}, L_{11})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{10},J_{12}} t_{K_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{10},J_{12}} t_{K_{10},L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{10},L_{11}} t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{10},L_{11}} t_{J_{12},K_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},J_{12}} t_{K_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},J_{12}} t_{K_{10},L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},L_{11}} t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},L_{11}} t_{J_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_{14}, K_8, L_{13})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_8,J_{14}} t_{K_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_8,J_{14}} t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_8,L_{13}} t_{J_{14},K_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_8,L_{13}} t_{J_{14},K_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_8,J_{14}} t_{K_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_8,J_{14}} t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_8,L_{13}} t_{J_{14},K_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_8,L_{13}} t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{12}, K_8, L_{13})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_{10},J_{12}} t_{K_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|0^J 1^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},J_{12}} t_{K_8,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{11}, K_9, L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1} t_{I_9,J_{11}} t_{K_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{12}}t_{J_{11},K_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{12}}t_{J_{11},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{12}}t_{J_{11},K_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{12}}t_{J_{11},K_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{13},K_7,L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_{13},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_{13},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_{13},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_{13},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{11},K_7,L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_7,L_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{11},K_{10},L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_{10},L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{12}}t_{J_{11},K_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{12}}t_{J_{11},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_{10},L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{12}}t_{J_{11},K_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{12}}t_{J_{11},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{13},K_8,L_{14})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_8,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_{13},K_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_8,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_8,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_{13},K_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_{13},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{11},K_8,L_{14})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_8,L_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_8,L_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11},K_9,L_{12})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_9,L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_9,L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_{11},K_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_{11},K_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_9,L_{12}}$$

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$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_{11},K_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_{11},K_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{13},K_7,L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_{13},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_{13},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_{13},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_{13},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11},K_7,L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_7,L_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11},K_{10},L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_{10},L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_{10},L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_{11},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{13},K_8,L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_{13},K_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_{13},K_8}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_{13},K_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_{13},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11},K_8,L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_8,L_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{11},K_9,L_{11})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_9,L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_{11},K_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_{11},K_9}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_9,L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_{11},K_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_{11},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{13}, K_7, L_{13})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_7,J_{13}} t_{K_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_7,J_{13}} t_{K_7,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_7,L_{13}} t_{J_{13},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_7,L_{13}} t_{J_{13},K_7}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_7,J_{13}} t_{K_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_7,J_{13}} t_{K_7,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_7,L_{13}} t_{J_{13},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_7,L_{13}} t_{J_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{11}, K_7, L_{13})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_9,J_{11}} t_{K_7,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,J_{11}} t_{K_7,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{11}, K_{10}, L_{11})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,J_{11}} t_{K_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,J_{11}} t_{K_{10},L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,L_{11}} t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,L_{11}} t_{J_{11},K_{10}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,J_{11}} t_{K_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,J_{11}} t_{K_{10},L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,L_{11}} t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,L_{11}} t_{J_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{13}, K_8, L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_8,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_8,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_{13},K_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_8,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_8,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_{13},K_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_{13},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{11},K_8,L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_9,J_{11}}t_{K_8,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_9,J_{11}}t_{K_8,L_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11},K_9,L_{11})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J1^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_9,L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J1^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_{11},K_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_{11},K_9}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J1^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_9,L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J1^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_{11},K_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_{11},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{13},K_7,L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J1^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_7,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_{13},K_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_{13},K_7}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_7,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{13}}t_{J_{13},K_7}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{13}}t_{J_{13},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11},K_7,L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_7,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|1^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_7,L_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11},K_{10},L_{11})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_{10},L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_{10},L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_{11},K_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_{11},K_{10}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_{10},L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_{10},L_{11}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_{11},K_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_{11},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{13},K_8,L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_8,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_8,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_{13},K_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_{13},K_8}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_8,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_8,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{13}}t_{J_{13},K_8}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{13}}t_{J_{13},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{11},K_8,L_{13})\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}}t_{K_8,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}}t_{K_8,L_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{12},K_9,L_{14})\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_{12},K_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_{12},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{12},K_9,L_{14})\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_{12},K_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_{12},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{12},K_{10},L_{14})\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_{12},K_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_{12},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{12},K_{10},L_{14})\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_{12},K_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{12}, K_9, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_{12},K_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_{12}, K_9, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_{12},K_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{13}}t_{J_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{12}, K_{10}, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_{12}, K_{10}, L_{13})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{13}}t_{J_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{11}, K_9, L_{14})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_{11},K_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_{11},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_{11}, K_9, L_{14})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_{11},K_9}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_{11},K_9}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{11},K_{10},L_{14})\rangle =$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_{11},K_{10}}$$
$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_{11},K_{10}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{11},K_{10},L_{14})\rangle =$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_{11},K_{10}}$$
$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_{11},K_{10}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{11},K_9,L_{13})\rangle =$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_{11},K_9}$$
$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_{11},K_9}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{11},K_9,L_{13})\rangle =$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_{11},K_9}$$
$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{13}}t_{J_{11},K_9}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{11},K_{10},L_{13})\rangle =$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_{11},K_{10}}$$
$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_{11},K_{10}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{11},K_{10},L_{13})\rangle =$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{13}}t_{J_{11},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_9,K_{12},L_7)\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_9,K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_9,K_{12},L_8)\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_9,K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_{10},K_{12},L_7)\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},L_7}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_7}t_{J_{10},K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{14},J_{10},K_{12},L_8)\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_{10},K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{13},J_9,K_{12},L_7)\rangle=$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L0^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},L_7}t_{J_9,K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{13}, J_9, K_{12}, L_8) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^L 0^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle \langle L_8 | \hat{1}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, L_8} t_{J_9, K_{12}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^L 0^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle \langle L_8 | \hat{1}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, L_8} t_{J_9, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{13}, J_{10}, K_{12}, L_7) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J | \hat{g} | 0^L 0^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, L_7} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J | \hat{g} | 0^L 0^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, L_7} t_{J_{10}, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{13}, J_{10}, K_{12}, L_8) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J | \hat{g} | 1^L 0^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle \langle L_8 | \hat{1}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{13}, L_8} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J | \hat{g} | 1^L 0^K \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle \langle L_8 | \hat{1}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, L_8} t_{J_{10}, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{14}, J_9, K_{11}, L_7) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{14}, L_7} t_{J_9, K_{11}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{14}, L_7} t_{J_9, K_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{14}, J_9, K_{11}, L_8) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 1^L 1^K \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle \langle L_8 | \hat{1}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{14}, L_8} t_{J_9, K_{11}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 1^L 1^K \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle \langle L_8 | \hat{1}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{14}, L_8} t_{J_9, K_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{14}, J_{10}, K_{11}, L_7) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J | \hat{g} | 0^L 1^K \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1, B_1} t_{I_{14}, L_7} t_{J_{10}, K_{11}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J | \hat{g} | 0^L 1^K \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{11} | \hat{1}^+_\alpha | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_1} t_{B_1} t_{I_{14}, L_7} t_{J_{10}, K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_{10}, K_{11}, L_8)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{14},L_8}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},L_8}t_{J_{10},K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{13}, J_9, K_{11}, L_7)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_{13},L_7}t_{J_9,K_{11}}$$

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$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_{13},J_8}t_{K_{11},L_{10}}$$
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$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{14},K_{12},L_7)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_{14},L_7}$$
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$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1} t_{I_{10},K_{12}} t_{J_{14},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},K_{12}} t_{J_{14},L_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{14}, K_{12}, L_8)\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1,B_1} t_{I_{10},K_{12}} t_{J_{14},L_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},K_{12}} t_{J_{14},L_8}$$

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$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1} t_{I_9,K_{12}} t_{J_{13},L_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1} t_{B_1} t_{I_9,K_{12}} t_{J_{13},L_7}$$

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$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{14}, K_{11}, L_7)\rangle =$$

$$+\tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle \langle I_9|\hat{0}_\alpha^-|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_{11}|\hat{1}_\alpha^+|K_0\rangle \langle L_7|\hat{0}_\beta^-|L_0\rangle t_{A_1,B_1} t_{I_9,K_{11}} t_{J_{14},L_7}$$

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$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_8|\hat{1}_\beta^-|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},K_{11}} t_{J_{13},L_8}$

$\langle(A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{14}, K_{12}, L_9)\rangle =$

$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_7,J_{14}} t_{K_{12},L_9}$

$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_7,J_{14}} t_{K_{12},L_9}$

$\langle(A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_{14}, K_{12}, L_9)\rangle =$

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$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_7,J_{14}} t_{K_{12},L_{10}}$

$+\frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^K|\hat{g}|0^J 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_7,J_{14}} t_{K_{12},L_{10}}$

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$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^K|\hat{g}|1^J1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_{12},L_{10}}$$

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$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{14},K_{11},L_9)\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_{11},L_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{14},K_{11},L_{10})\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|0^J1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_{11},L_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{14},K_{11},L_{10})\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|0^J1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_{11},L_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{13},K_{11},L_9)\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_{11},L_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{13},K_{11},L_9)\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_{11},L_9}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^K|\hat{g}|1^J0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_9|\hat{0}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_{11},L_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{13},K_{11},L_{10})\rangle=$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^K|\hat{g}|1^J1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_{11},L_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_{13}, K_{11}, L_{10})\rangle =$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1,B_1} t_{I_8,J_{13}} t_{K_{11},L_{10}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^K|\hat{g}|1^J 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{10}|\hat{1}_\alpha^-|L_0\rangle t_{A_1} t_{B_1} t_{I_8,J_{13}} t_{K_{11},L_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_9, K_{12}, L_{12})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,K_{12}} t_{J_9,L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,K_{12}} t_{J_9,L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,L_{12}} t_{J_9,K_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,L_{12}} t_{J_9,K_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,K_{12}} t_{J_9,L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,K_{12}} t_{J_9,L_{12}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,L_{12}} t_{J_9,K_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,L_{12}} t_{J_9,K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_7, K_{14}, L_{14})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_7,K_{14}} t_{J_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_7,K_{14}} t_{J_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_7,L_{14}} t_{J_7,K_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_7,L_{14}} t_{J_7,K_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_7,K_{14}} t_{J_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_7,K_{14}} t_{J_7,L_{14}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_7,L_{14}} t_{J_7,K_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_7,L_{14}} t_{J_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_7, K_{12}, L_{14})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_9,K_{12}} t_{J_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_7,L_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{10},K_{12},L_{12})\rangle=$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,L_{12}}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,L_{12}}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{12}}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{12}}t_{J_{10},K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_8,K_{14},L_{14})\rangle=$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_8,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_8,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_8,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L0^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_8,K_{12},L_{14})\rangle=$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_8,L_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_9, K_{12}, L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{10},K_{12}} t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{10},K_{12}} t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{10},L_{12}} t_{J_9,K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1} t_{I_{10},L_{12}} t_{J_9,K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},K_{12}} t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},K_{12}} t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},L_{12}} t_{J_9,K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},L_{12}} t_{J_9,K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_7, K_{14}, L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_8,K_{14}} t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_8,K_{14}} t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_8,L_{14}} t_{J_7,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_8,L_{14}} t_{J_7,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_8,K_{14}} t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_8,K_{14}} t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_8,L_{14}} t_{J_7,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_8,L_{14}} t_{J_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_7, K_{12}, L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1} t_{I_{10},K_{12}} t_{J_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},K_{12}} t_{J_7,L_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{10}, K_{12}, L_{12})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{12}}t_{J_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{12}}t_{J_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_{10},K_{12}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_{10},K_{12}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{12}}t_{J_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{12}}t_{J_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_{10},K_{12}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_{10},K_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_8,K_{14},L_{14})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_8,K_{14}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_8,K_{14}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_8,K_{14}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^L0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_8,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_8,K_{12},L_{14})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{12}}t_{J_8,L_{14}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|0^K0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{12}}t_{J_8,L_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_9,K_{12},L_{11})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_9,K_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_9,K_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_9,K_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_9,K_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_7,K_{14},L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_7,K_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_7,K_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_7,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_7,K_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_7,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_7,K_{12},L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_7,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_7,L_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{10},K_{12},L_{11})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_{10},L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_{10},L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_{10},K_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_{10},K_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_{10},L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_{10},L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_{10},K_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_{10},K_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_8,K_{14},L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_8,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_8,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_8,K_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_8,K_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_8,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_8,L_{13}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_8,K_{14}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_8,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_8,K_{12},L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_9,K_{12}}t_{J_8,L_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{12}}t_{J_8,L_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_9,K_{12},L_{11})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{12}}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{12}}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_9,K_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_9,K_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{12}}t_{J_9,L_{11}}$$

$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{12}}t_{J_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_9,K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_9,K_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_7,K_{14},L_{13})\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_7,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_7,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{13}}t_{J_7,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{13}}t_{J_7,K_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_7,K_{12},L_{13})\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{12}}t_{J_7,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{12}}t_{J_7,L_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{10},K_{12},L_{11})\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{12}}t_{J_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{12}}t_{J_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{12}}t_{J_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{12}}t_{J_{10},L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_{10},K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_8, K_{14}, L_{13})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_8,K_{14}} t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_8,K_{14}} t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_8,L_{13}} t_{J_8,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_8,L_{13}} t_{J_8,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_8,K_{14}} t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_8,K_{14}} t_{J_8,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_8,L_{13}} t_{J_8,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_8,L_{13}} t_{J_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_8, K_{12}, L_{13})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1} t_{I_{10},K_{12}} t_{J_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1} t_{B_1} t_{I_{10},K_{12}} t_{J_8,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_9, K_{11}, L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,K_{11}} t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,K_{11}} t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,L_{12}} t_{J_9,K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1} t_{I_9,L_{12}} t_{J_9,K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,K_{11}} t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,K_{11}} t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,L_{12}} t_{J_9,K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1} t_{B_1} t_{I_9,L_{12}} t_{J_9,K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_7, K_{13}, L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_7,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_7,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_7,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_7, K_{11}, L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_7,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_7,L_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{10}, K_{11}, L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{12}}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{12}}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{12}}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{12}}t_{J_{10},K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_8, K_{13}, L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_8,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_8,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_8,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_8,K_{11},L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K0^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_8,L_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_9,K_{11},L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_9,L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_9,K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_7,K_{13},L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^L1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_7,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K0^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_7,K_{13}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_7,K_{13}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_7,L_{14}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_7,L_{14}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_7,K_{13}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 0^J|\hat{g}|0^L 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_7,K_{11},L_{14})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_7,L_{14}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_7,L_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{10},K_{11},L_{12})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_{10},K_{11}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_{10},K_{11}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_{10},L_{12}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_{10},K_{11}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_{10},K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_8,K_{13},L_{14})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_8,L_{14}}$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_8,K_{13}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_8,L_{14}}t_{J_8,K_{13}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{14}|\hat{0}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_8,L_{14}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_8,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|0^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_8,K_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_8,K_{11},L_{14})\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_8,L_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K0^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_8,L_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_9,K_{11},L_{11})\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_9,K_{11}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_7,K_{13},L_{13})\rangle =$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_7,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_7,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_7,K_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_7,K_{11},L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_7,L_{13}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_7,L_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_{10},K_{11},L_{11})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_{10},L_{11}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_{10},L_{11}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_{10},K_{11}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_{10},K_{11}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_{10},L_{11}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_{10},L_{11}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_{10},K_{11}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_{10},K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_8,K_{13},L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_8,L_{13}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_8,L_{13}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_8,K_{13}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_8,K_{13}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_8,L_{13}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_8,L_{13}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^K1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_8,K_{13}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{13}|\hat{1}^+_\beta|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{13}}t_{J_8,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_8, K_{11}, L_{13})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_9,K_{11}}t_{J_8,L_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,K_{11}}t_{J_8,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_9, K_{11}, L_{11})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_9,K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_7, K_{13}, L_{13})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_7,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_7,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_7,L_{13}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{13}}t_{J_7,K_{13}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{13}}t_{J_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_7, K_{11}, L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_7,L_{13}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_7,L_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_{10},K_{11},L_{11})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_{10},L_{11}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_{10},L_{11}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_{10},K_{11}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_{10},K_{11}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_{10},L_{11}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_{10},L_{11}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_{10},K_{11}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_{10},K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_8,K_{13},L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_8,L_{13}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_8,L_{13}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_8,K_{13}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_8,K_{13}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_8,L_{13}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_8,L_{13}}$$
$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{13}}t_{J_8,K_{13}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{13}}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_8,K_{11},L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_{10},K_{11}}t_{J_8,L_{13}}$$
$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},K_{11}}t_{J_8,L_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_9, K_{12}, L_{14})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_9,K_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,L_{14}}t_{J_9,K_{12}}$$

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$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 0^J|\hat{g}|0^L 0^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,L_{14}}t_{J_9,K_{12}}$$

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$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_{10},K_{12}}$$

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$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{14}|\hat{0}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{14}}t_{J_9,K_{11}}$$

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$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_9,K_{11},L_{13})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_7,L_{13}}t_{J_9,K_{11}}$$

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$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle\langle L_{13}|\hat{1}_\beta^+|L_0\rangle t_{A_1,B_1}t_{I_8,L_{13}}t_{J_{10},K_{11}}$$

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$$+\frac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K0^L\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_9,L_{12}}$$

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$$\langle(A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_9, K_8, L_{12})\rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle\langle K_8|\hat{1}^-_{\beta}|K_0\rangle\langle L_{12}|\hat{0}^+_{\alpha}|L_0\rangle t_{A_1,B_1} t_{I_{14},K_8} t_{J_9,L_{12}}$$

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$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J|\hat{g}|0^K 0^L\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle\langle K_7|\hat{0}^-_{\beta}|K_0\rangle\langle L_{12}|\hat{0}^+_{\alpha}|L_0\rangle t_{A_1,B_1} t_{I_{13},K_7} t_{J_9,L_{12}}$$

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$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle\langle K_7|\hat{0}^-_{\beta}|K_0\rangle\langle L_{12}|\hat{0}^+_{\alpha}|L_0\rangle t_{A_1} t_{B_1} t_{I_{13},K_7} t_{J_{10},L_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{13}, J_{10}, K_8, L_{12})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{13},K_8}t_{J_{10},L_{12}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},K_8}t_{J_{10},L_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{14}, J_9, K_7, L_{11})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{14},K_7}t_{J_9,L_{11}}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|0^K 1^L\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{14},K_7}t_{J_9,L_{11}}$$

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$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^K|\hat{g}|1^J1^L\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{13},J_8}t_{K_9,L_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{13}, J_7, K_{10}, L_{11}) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 1^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{11} | \hat{1}^+_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{13}, J_7} t_{K_{10}, L_{11}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 0^J 1^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{11} | \hat{1}^+_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_7} t_{K_{10}, L_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{13}, J_8, K_{10}, L_{11}) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 1^J 1^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{11} | \hat{1}^+_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{13}, J_8} t_{K_{10}, L_{11}}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^K | \hat{g} | 1^J 1^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle \langle L_{11} | \hat{1}^+_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{13}, J_8} t_{K_{10}, L_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_9, J_{14}, K_7, L_{12}) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^L 0^K \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_{14} | \hat{0}^+_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_9, L_{12}} t_{J_{14}, K_7}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^L 0^K \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_{14} | \hat{0}^+_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_9, L_{12}} t_{J_{14}, K_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_9, J_{14}, K_8, L_{12}) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_{14} | \hat{0}^+_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_9, L_{12}} t_{J_{14}, K_8}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_{14} | \hat{0}^+_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_9, L_{12}} t_{J_{14}, K_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{10}, J_{14}, K_7, L_{12}) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 0^K \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_{14} | \hat{0}^+_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{10}, L_{12}} t_{J_{14}, K_7}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 0^K \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_{14} | \hat{0}^+_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{10}, L_{12}} t_{J_{14}, K_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_{10}, J_{14}, K_8, L_{12}) \rangle =$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_{14} | \hat{0}^+_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1, B_1} t_{I_{10}, L_{12}} t_{J_{14}, K_8}$$

$$+ \tfrac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^L 1^K \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_{14} | \hat{0}^+_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle \langle L_{12} | \hat{0}^+_\alpha | L_0 \rangle t_{A_1} t_{B_1} t_{I_{10}, L_{12}} t_{J_{14}, K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{13}, K_7, L_{12})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,L_{12}}t_{J_{13},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{12}}t_{J_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{13}, K_8, L_{12})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,L_{12}}t_{J_{13},K_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{12}}t_{J_{13},K_8}$$

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$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_{13},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^L 0^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{13}, K_8, L_{12})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{12}}t_{J_{13},K_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|0^L 1^K\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{12}|\hat{0}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{12}}t_{J_{13},K_8}$$

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$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{14}, K_8, L_{11})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_{14},K_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{14}, K_7, L_{11})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_{14},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{14}, K_8, L_{11})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_{14},K_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_{13}, K_7, L_{11})\rangle =$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_{13},K_7}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_{13},K_7}$$

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$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_{13},K_8}$$

$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_{13}, K_7, L_{11})\rangle =$$

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$$+\tfrac{-1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_{13},K_7}$$

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$$+\tfrac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^J|\hat{g}|1^L 1^K\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_8|\hat{1}^-_{\beta}|K_0\rangle\langle L_{11}|\hat{1}^+_{\alpha}|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_{13},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{14},K_9,L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_9|\hat{0}^-_{\alpha}|K_0\rangle\langle L_{12}|\hat{0}^+_{\alpha}|L_0\rangle t_{A_1,B_1}t_{I_7,J_{14}}t_{K_9,L_{12}}$$
$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_9|\hat{0}^-_{\alpha}|K_0\rangle\langle L_{12}|\hat{0}^+_{\alpha}|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_9,L_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{14},K_9,L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_9|\hat{0}^-_{\alpha}|K_0\rangle\langle L_{12}|\hat{0}^+_{\alpha}|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_9,L_{12}}$$
$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 0^K|\hat{g}|0^J 0^L\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_9|\hat{0}^-_{\alpha}|K_0\rangle\langle L_{12}|\hat{0}^+_{\alpha}|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_9,L_{12}}$$

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$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle\langle L_{12}|\hat{0}^+_{\alpha}|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{14}}t_{K_{10},L_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{14},K_{10},L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle\langle L_{12}|\hat{0}^+_{\alpha}|L_0\rangle t_{A_1,B_1}t_{I_8,J_{14}}t_{K_{10},L_{12}}$$
$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I 1^K|\hat{g}|0^J 0^L\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle\langle L_{12}|\hat{0}^+_{\alpha}|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}}t_{K_{10},L_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{13},K_9,L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_9|\hat{0}^-_{\alpha}|K_0\rangle\langle L_{12}|\hat{0}^+_{\alpha}|L_0\rangle t_{A_1,B_1}t_{I_7,J_{13}}t_{K_9,L_{12}}$$
$$+\tfrac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_9|\hat{0}^-_{\alpha}|K_0\rangle\langle L_{12}|\hat{0}^+_{\alpha}|L_0\rangle t_{A_1}t_{B_1}t_{I_7,J_{13}}t_{K_9,L_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{13},K_9,L_{12})\rangle =$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_8,J_{13}}t_{K_9,L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^K|\hat{g}|1^J 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}}t_{K_9,L_{12}}$$

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$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_{10}, J_8, K_{14}, L_{11})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_8,K_{14}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^L 0^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_9, J_7, K_{13}, L_{11})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^L 1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_7,K_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_9,J_8,K_{13},L_{11})\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_9,L_{11}}t_{J_8,K_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I1^J|\hat{g}|1^L1^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_9,L_{11}}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_7,K_{13},L_{11})\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_7,K_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|1^L1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_{10},J_8,K_{13},L_{11})\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_{10},L_{11}}t_{J_8,K_{13}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_{10},L_{11}}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_9,K_{14},L_{12})\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_9,L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I0^J|\hat{g}|0^K0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_9,L_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_9,K_{14},L_{12})\rangle=$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_9,L_{12}}$$

$$+\frac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I0^J|\hat{g}|0^K0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_9,L_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{10},K_{14},L_{12})\rangle=$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_7,K_{14}}t_{J_{10},L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{14}}t_{J_{10},L_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{10},K_{14},L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_8,K_{14}}t_{J_{10},L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|0^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{14}}t_{J_{10},L_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_9,K_{13},L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_9,L_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_9,K_{13},L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_9,L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 0^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_9,L_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_7,J_{10},K_{13},L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_{10},L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 0^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_{10},L_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_1,I_8,J_{10},K_{13},L_{12})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_{10},L_{12}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L\langle 1^I 1^J|\hat{g}|1^K 0^L\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle\langle L_{12}|\hat{0}_\alpha^+|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_{10},L_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_7, J_9, K_{14}, L_{11}) \rangle =$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^K 1^L \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_1, B_1} t_{I_7, K_{14}} t_{J_9, L_{11}}$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 0^K 1^L \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_1} t_{B_1} t_{I_7, K_{14}} t_{J_9, L_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_8, J_9, K_{14}, L_{11}) \rangle =$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^K 1^L \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_1, B_1} t_{I_8, K_{14}} t_{J_9, L_{11}}$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 0^K 1^L \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_1} t_{B_1} t_{I_8, K_{14}} t_{J_9, L_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_7, J_{10}, K_{14}, L_{11}) \rangle =$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_1, B_1} t_{I_7, K_{14}} t_{J_{10}, L_{11}}$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_1} t_{B_1} t_{I_7, K_{14}} t_{J_{10}, L_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_8, J_{10}, K_{14}, L_{11}) \rangle =$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_1, B_1} t_{I_8, K_{14}} t_{J_{10}, L_{11}}$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_1} t_{B_1} t_{I_8, K_{14}} t_{J_{10}, L_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_7, J_9, K_{13}, L_{11}) \rangle =$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 1^K 1^L \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_1, B_1} t_{I_7, K_{13}} t_{J_9, L_{11}}$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J | \hat{g} | 1^K 1^L \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_1} t_{B_1} t_{I_7, K_{13}} t_{J_9, L_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_1, I_8, J_9, K_{13}, L_{11}) \rangle =$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^K 1^L \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_1, B_1} t_{I_8, K_{13}} t_{J_9, L_{11}}$$

$$+\tfrac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J | \hat{g} | 1^K 1^L \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_1} t_{B_1} t_{I_8, K_{13}} t_{J_9, L_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_7, J_{10}, K_{13}, L_{11})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_7,K_{13}}t_{J_{10},L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 0^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_7,K_{13}}t_{J_{10},L_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_1, I_8, J_{10}, K_{13}, L_{11})\rangle =$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1,B_1}t_{I_8,K_{13}}t_{J_{10},L_{11}}$$

$$+\tfrac{1}{48}\sum_I\sum_J\sum_K\sum_L \langle 1^I 1^J|\hat{g}|1^K 1^L\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle\langle L_{11}|\hat{1}^+_\alpha|L_0\rangle t_{A_1}t_{B_1}t_{I_8,K_{13}}t_{J_{10},L_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{12}, J_9, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_{12},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_{14}, J_7, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_{14},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{14}, J_9, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{12}, J_9, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_{12},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_{14}, J_7, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_{14},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{14}, J_9, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{12}, J_{10}, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^J 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^J 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_{12},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_{12},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_{14}, J_8, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^J 0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^J 0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_{14},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|0^K1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_{14},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_{14},J_{10},K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^J0^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{14},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_{12},J_{10},K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^J1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{12},K_{10}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^K1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{12},K_{10}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^J1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_{12},J_{10}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^K1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_{12},J_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_1,I_{14},J_8,K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^J1^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_{14},K_8}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^K1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_{14},K_8}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^J1^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_{14},J_8}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^K1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_{14},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_{14},J_{10},K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^J1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{14},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_{11},J_9,K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{11},K_9}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{11},K_9}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_{11},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_1,I_{13},J_7,K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_{13},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_{13},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_{13},J_9,K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{13},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_{11},J_9,K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^K0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^K0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_{11},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_1,I_{13},J_7,K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J1^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^K0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J1^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_{13},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^K0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_{13},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_{13},J_9,K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{13},K_8}$$

$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_{11},J_{10},K_9)\rangle =$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_{11},J_{10}}$$

$\langle (A_1,B_1)|\hat{H}|(A_{14},B_1,I_{13},J_8,K_7)\rangle =$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_{13},J_8}$$

$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_{13},J_{10},K_7)\rangle =$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{13},K_7}$$

$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_{11},J_{10},K_{10})\rangle =$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^K1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^K1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_{11},J_{10}}$$

$\langle (A_1,B_1)|\hat{H}|(A_{14},B_1,I_{13},J_8,K_8)\rangle =$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_{13},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_1,I_{13},J_{10},K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{13},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_{12},J_9,K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_{12},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_1,I_{14},J_7,K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_7}t_{I_{14},J_7}$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_7}t_{I_{14},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_{14},J_9,K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_{14},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_{12},J_9,K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^K0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^K0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_{12},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_1,I_{14},J_7,K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^K0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_{14},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^K0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_{14},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_{14},J_9,K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_{14},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_{12},J_{10},K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_{12},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_{12},J_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_1,I_{14},J_8,K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_7}t_{I_{14},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_7}t_{I_{14},J_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{14}, J_{10}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^J 0^K\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{14},K_7}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{12}, J_{10}, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_{12},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_{12},J_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{13}, B_1, I_{14}, J_8, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_{14},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_{14},J_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{14}, J_{10}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{14},K_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{11}, J_9, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_{11},J_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{13}, B_1, I_{13}, J_7, K_7) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^J 0^K \rangle \langle A_{13} | \hat{1}^+_\beta | A_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{B_1} t_{A_{13}, J_7} t_{I_{13}, K_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^K 0^J \rangle \langle A_{13} | \hat{1}^+_\beta | A_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{B_1} t_{A_{13}, J_7} t_{I_{13}, K_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^J 0^K \rangle \langle A_{13} | \hat{1}^+_\beta | A_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{B_1} t_{A_{13}, K_7} t_{I_{13}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^K 0^J \rangle \langle A_{13} | \hat{1}^+_\beta | A_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{B_1} t_{A_{13}, K_7} t_{I_{13}, J_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{11}, B_1, I_{13}, J_9, K_7) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^J 0^K \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{B_1} t_{A_{11}, J_9} t_{I_{13}, K_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{11}, B_1, I_{11}, J_9, K_{10}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^J 1^K \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle t_{B_1} t_{A_{11}, J_9} t_{I_{11}, K_{10}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 1^K 0^J \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle t_{B_1} t_{A_{11}, J_9} t_{I_{11}, K_{10}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^J 1^K \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle t_{B_1} t_{A_{11}, K_{10}} t_{I_{11}, J_9}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 1^K 0^J \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle t_{B_1} t_{A_{11}, K_{10}} t_{I_{11}, J_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{13}, B_1, I_{13}, J_7, K_8) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^J 1^K \rangle \langle A_{13} | \hat{1}^+_\beta | A_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{B_1} t_{A_{13}, J_7} t_{I_{13}, K_8}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 1^K 0^J \rangle \langle A_{13} | \hat{1}^+_\beta | A_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{B_1} t_{A_{13}, J_7} t_{I_{13}, K_8}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^J 1^K \rangle \langle A_{13} | \hat{1}^+_\beta | A_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{B_1} t_{A_{13}, K_8} t_{I_{13}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 1^K 0^J \rangle \langle A_{13} | \hat{1}^+_\beta | A_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{B_1} t_{A_{13}, K_8} t_{I_{13}, J_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{11}, B_1, I_{13}, J_9, K_8) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^J 1^K \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{B_1} t_{A_{11}, J_9} t_{I_{13}, K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{11}, J_{10}, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{11},K_9}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{11},K_9}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_{11},J_{10}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_{13}, J_8, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_{13},K_7}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_{13},K_7}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_7}t_{I_{13},J_8}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_7}t_{I_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{13}, J_{10}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{11}, J_{10}, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{11},K_{10}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{11},K_{10}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_{11},J_{10}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_{13}, J_8, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^K1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_{13},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^K1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_{13},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_{13},J_{10},K_8)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{13},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_{14},J_7,K_9)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|0^K0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_{14},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_{14},J_8,K_9)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|0^K1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_{14},J_7,K_{10})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^K0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_{14},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_{14},J_8,K_{10})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^K1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_{13},J_7,K_9)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_{13},J_7}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{13}, J_8, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12},K_9} t_{I_{13},J_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{13}, J_7, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12},K_{10}} t_{I_{13},J_7}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{13}, J_8, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12},K_{10}} t_{I_{13},J_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{14}, J_7, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 1^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11},K_9} t_{I_{14},J_7}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{14}, J_8, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 1^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11},K_9} t_{I_{14},J_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{14}, J_7, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11},K_{10}} t_{I_{14},J_7}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{14}, J_8, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 1^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11},K_{10}} t_{I_{14},J_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{13}, J_7, K_9)\rangle =$$

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$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_{13},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_{13},J_8,K_9)\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_{13},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_{13},J_7,K_{10})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_{13},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_{13},J_8,K_{10})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_{13},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_9,J_{12},K_9)\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_{12},K_9}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_{12},K_9}$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_9,J_{12}}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_7,J_{14},K_7)\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_{14},K_7}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_{14},K_7}$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_7,J_{14}}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_9, J_{14}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1} t_{A_{12},I_9} t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_9, J_{12}, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12},I_9} t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12},I_9} t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12},K_{10}} t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12},K_{10}} t_{I_9,J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_7, J_{14}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1} t_{A_{14},I_7} t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1} t_{A_{14},I_7} t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1} t_{A_{14},K_8} t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1} t_{A_{14},K_8} t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_9, J_{14}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1} t_{A_{12},I_9} t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{10}, J_{12}, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12},I_{10}} t_{J_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12},I_{10}} t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12},K_9} t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12},K_9} t_{I_{10},J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_8, J_{14}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{10}, J_{14}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{10}, J_{12}, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^K0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^K0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_{10},J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_8, J_{14}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^K0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^K0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{10}, J_{14}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_9, J_{11}, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_9,J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_7, J_{13}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_9, J_{13}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_9, J_{11}, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_9,J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_7, J_{13}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_7,J_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 1^K 1^J \rangle \langle A_{14} | \hat{0}^+_\beta | A_1 \rangle \langle I_7 | \hat{0}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{B_1} t_{A_{14},K_8} t_{I_7,J_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{12}, B_1, I_9, J_{13}, K_8) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 0^I 1^K \rangle \langle A_{12} | \hat{0}^+_\alpha | A_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{B_1} t_{A_{12},I_9} t_{J_{13},K_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{12}, B_1, I_{10}, J_{11}, K_9) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 1^I 0^K \rangle \langle A_{12} | \hat{0}^+_\alpha | A_1 \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_{11} | \hat{1}^+_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{B_1} t_{A_{12},I_{10}} t_{J_{11},K_9}$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 0^K 1^J \rangle \langle A_{12} | \hat{0}^+_\alpha | A_1 \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_{11} | \hat{1}^+_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{B_1} t_{A_{12},I_{10}} t_{J_{11},K_9}$$
$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 1^I 0^K \rangle \langle A_{12} | \hat{0}^+_\alpha | A_1 \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_{11} | \hat{1}^+_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{B_1} t_{A_{12},K_9} t_{I_{10},J_{11}}$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 0^K 1^J \rangle \langle A_{12} | \hat{0}^+_\alpha | A_1 \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_{11} | \hat{1}^+_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{B_1} t_{A_{12},K_9} t_{I_{10},J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{14}, B_1, I_8, J_{13}, K_7) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 1^I 0^K \rangle \langle A_{14} | \hat{0}^+_\beta | A_1 \rangle \langle I_8 | \hat{1}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{B_1} t_{A_{14},I_8} t_{J_{13},K_7}$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 0^K 1^J \rangle \langle A_{14} | \hat{0}^+_\beta | A_1 \rangle \langle I_8 | \hat{1}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{B_1} t_{A_{14},I_8} t_{J_{13},K_7}$$
$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 1^I 0^K \rangle \langle A_{14} | \hat{0}^+_\beta | A_1 \rangle \langle I_8 | \hat{1}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{B_1} t_{A_{14},K_7} t_{I_8,J_{13}}$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 0^K 1^J \rangle \langle A_{14} | \hat{0}^+_\beta | A_1 \rangle \langle I_8 | \hat{1}^-_\beta | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{B_1} t_{A_{14},K_7} t_{I_8,J_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{12}, B_1, I_{10}, J_{13}, K_7) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 1^I 0^K \rangle \langle A_{12} | \hat{0}^+_\alpha | A_1 \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{B_1} t_{A_{12},I_{10}} t_{J_{13},K_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{12}, B_1, I_{10}, J_{11}, K_{10}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 1^I 1^K \rangle \langle A_{12} | \hat{0}^+_\alpha | A_1 \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_{11} | \hat{1}^+_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle t_{B_1} t_{A_{12},I_{10}} t_{J_{11},K_{10}}$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 1^K 1^J \rangle \langle A_{12} | \hat{0}^+_\alpha | A_1 \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_{11} | \hat{1}^+_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle t_{B_1} t_{A_{12},I_{10}} t_{J_{11},K_{10}}$$
$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 1^I 1^K \rangle \langle A_{12} | \hat{0}^+_\alpha | A_1 \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_{11} | \hat{1}^+_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle t_{B_1} t_{A_{12},K_{10}} t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^K1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_{10},J_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_8,J_{13},K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^K1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^K1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_8,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_{10},J_{13},K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_{13},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_9,J_{12},K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|0^I0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|0^I0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_7,J_{14},K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|0^I0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|0^I0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_7}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_7}t_{I_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_9,J_{14},K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_{14},K_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_9,J_{12},K_{10})\rangle =$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_9,J_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_7,J_{14},K_8)\rangle =$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_7,J_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_9,J_{14},K_8)\rangle =$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_{14},K_8}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_{10},J_{12},K_9)\rangle =$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_{10},J_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_8,J_{14},K_7)\rangle =$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I0^K\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|0^K0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I0^K\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},K_7}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|0^K0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},K_7}t_{I_8,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_{10},J_{14},K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I0^K\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_{14},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_{10},J_{12},K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I1^K\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^K0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I1^K\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^K0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_{10},J_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_1,I_8,J_{14},K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I1^K\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^K0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I1^K\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^K0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_8,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_{10},J_{14},K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I1^K\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_{14},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_9,J_{11},K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_9,J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_1,I_7,J_{13},K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_7}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_7}t_{I_7,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_9,J_{13},K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_{13},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_9,J_{11},K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^K1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^K1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_9,J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_1,I_7,J_{13},K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^K1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^K1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_9, J_{13}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1} t_{A_{11},I_9} t_{J_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{10}, J_{11}, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11},I_{10}} t_{J_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11},I_{10}} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11},K_9} t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11},K_9} t_{I_{10},J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_8, J_{13}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1} t_{A_{13},I_8} t_{J_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1} t_{A_{13},I_8} t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1} t_{A_{13},K_7} t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1} t_{A_{13},K_7} t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{10}, J_{13}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1} t_{A_{11},I_{10}} t_{J_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{10}, J_{11}, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11},I_{10}} t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11},I_{10}} t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11},K_{10}} t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11},K_{10}} t_{I_{10},J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_8, J_{13}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 1^K\rangle \langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 1^J\rangle \langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 1^K\rangle \langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 1^J\rangle \langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_{10}, J_{13}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 1^K\rangle \langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_7, J_{14}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_8, J_{14}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^K 0^J\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},K_9}t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_7, J_{14}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_8, J_{14}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^K 0^J\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{12},K_{10}}t_{I_8,J_{14}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{12}, B_1, I_7, J_{13}, K_9)\rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I |\hat{g}| 0^K 1^J \rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle \langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12}, K_9} t_{I_7, J_{13}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{12}, B_1, I_8, J_{13}, K_9)\rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I |\hat{g}| 0^K 1^J \rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle \langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12}, K_9} t_{I_8, J_{13}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{12}, B_1, I_7, J_{13}, K_{10})\rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I |\hat{g}| 1^K 1^J \rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle \langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12}, K_{10}} t_{I_7, J_{13}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{12}, B_1, I_8, J_{13}, K_{10})\rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I |\hat{g}| 1^K 1^J \rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle \langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{12}, K_{10}} t_{I_8, J_{13}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_1, I_7, J_{14}, K_9)\rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}| 0^K 0^J \rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11}, K_9} t_{I_7, J_{14}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_1, I_8, J_{14}, K_9)\rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I |\hat{g}| 0^K 0^J \rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11}, K_9} t_{I_8, J_{14}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_1, I_7, J_{14}, K_{10})\rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}| 1^K 0^J \rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_{11}, K_{10}} t_{I_7, J_{14}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_1, I_8, J_{14}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\bar\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_8,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_7,J_{13},K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\bar\beta}|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_7,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_8,J_{13},K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\bar\beta}|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_9}t_{I_8,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_7,J_{13},K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\bar\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_7,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_8,J_{13},K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\bar\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{11},K_{10}}t_{I_8,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_9,J_9,K_{12})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_9,K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_7,J_7,K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{14}|\hat{0}^+_{\bar\beta}|A_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\bar\beta}|J_0\rangle\langle K_{14}|\hat{0}^+_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{14}|\hat{0}^+_{\bar\beta}|A_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\bar\beta}|J_0\rangle\langle K_{14}|\hat{0}^+_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_9,J_7,K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_9,J_{10},K_{12})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^J 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^J 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_9,K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_7,J_8,K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^J 0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^J 0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_9,J_8,K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_{10},J_9,K_{12})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{10},K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{10},K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_8,J_7,K_{14})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_{10},J_7,K_{14})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_{10},J_{10},K_{12})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_{10},K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_{10},K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{10},K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{10},K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_8,J_8,K_{14})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_8,K_{14}}$$

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$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{10}, J_8, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_9, J_9, K_{11})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_9,K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_7, J_7, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_9, J_7, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_9, J_{10}, K_{11})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_9,K_{11}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{14}, B_1, I_7, J_8, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_{14}|\hat{0}^+_{\bar{\beta}}|A_1\rangle\langle I_7|\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_8|\hat{1}^-_{\bar{\beta}}|J_0\rangle\langle K_{13}|\hat{1}^+_{\bar{\beta}}|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_{14}|\hat{0}^+_{\bar{\beta}}|A_1\rangle\langle I_7|\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_8|\hat{1}^-_{\bar{\beta}}|J_0\rangle\langle K_{13}|\hat{1}^+_{\bar{\beta}}|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_{14}|\hat{0}^+_{\bar{\beta}}|A_1\rangle\langle I_7|\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_8|\hat{1}^-_{\bar{\beta}}|J_0\rangle\langle K_{13}|\hat{1}^+_{\bar{\beta}}|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_{14}|\hat{0}^+_{\bar{\beta}}|A_1\rangle\langle I_7|\hat{0}^-_{\bar{\beta}}|I_0\rangle\langle J_8|\hat{1}^-_{\bar{\beta}}|J_0\rangle\langle K_{13}|\hat{1}^+_{\bar{\beta}}|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_7,K_{13}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{12}, B_1, I_9, J_8, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_{12}|\hat{0}^+_{\alpha}|A_1\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_8|\hat{1}^-_{\bar{\beta}}|J_0\rangle\langle K_{13}|\hat{1}^+_{\bar{\beta}}|K_0\rangle t_{B_1}t_{A_{12},I_9}t_{J_8,K_{13}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{10}, J_9, K_{11})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_{12}|\hat{0}^+_{\alpha}|A_1\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|0^J 1^K\rangle\langle A_{12}|\hat{0}^+_{\alpha}|A_1\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_{12}|\hat{0}^+_{\alpha}|A_1\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|0^J 1^K\rangle\langle A_{12}|\hat{0}^+_{\alpha}|A_1\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_{10},K_{11}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{14}, B_1, I_8, J_7, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_{14}|\hat{0}^+_{\bar{\beta}}|A_1\rangle\langle I_8|\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_7|\hat{0}^-_{\bar{\beta}}|J_0\rangle\langle K_{13}|\hat{1}^+_{\bar{\beta}}|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|0^J 1^K\rangle\langle A_{14}|\hat{0}^+_{\bar{\beta}}|A_1\rangle\langle I_8|\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_7|\hat{0}^-_{\bar{\beta}}|J_0\rangle\langle K_{13}|\hat{1}^+_{\bar{\beta}}|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_{14}|\hat{0}^+_{\bar{\beta}}|A_1\rangle\langle I_8|\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_7|\hat{0}^-_{\bar{\beta}}|J_0\rangle\langle K_{13}|\hat{1}^+_{\bar{\beta}}|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|0^J 1^K\rangle\langle A_{14}|\hat{0}^+_{\bar{\beta}}|A_1\rangle\langle I_8|\hat{1}^-_{\bar{\beta}}|I_0\rangle\langle J_7|\hat{0}^-_{\bar{\beta}}|J_0\rangle\langle K_{13}|\hat{1}^+_{\bar{\beta}}|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_8,K_{13}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{10}, J_7, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_{12}|\hat{0}^+_{\alpha}|A_1\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_7|\hat{0}^-_{\bar{\beta}}|J_0\rangle\langle K_{13}|\hat{1}^+_{\bar{\beta}}|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{10}, J_{10}, K_{11})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_{10},K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_8, J_8, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_8,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_{10}, J_8, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{12},I_{10}}t_{J_8,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_9, J_9, K_{12})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_9,K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_7, J_7, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_7,K_{14}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 0^J 0^K \rangle \langle A_{13} | \hat{1}^+_\beta | A_1 \rangle \langle I_7 | \hat{0}^-_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{B_1} t_{A_{13},J_7} t_{I_7,K_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{11}, B_1, I_9, J_7, K_{14}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^J | \hat{g} | 0^I 0^K \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{B_1} t_{A_{11},I_9} t_{J_7,K_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{11}, B_1, I_9, J_{10}, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^J | \hat{g} | 0^I 0^K \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{B_1} t_{A_{11},I_9} t_{J_{10},K_{12}}$$
$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 1^J 0^K \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{B_1} t_{A_{11},I_9} t_{J_{10},K_{12}}$$
$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^J | \hat{g} | 0^I 0^K \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{B_1} t_{A_{11},J_{10}} t_{I_9,K_{12}}$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 1^J 0^K \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{B_1} t_{A_{11},J_{10}} t_{I_9,K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{13}, B_1, I_7, J_8, K_{14}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^J | \hat{g} | 0^I 0^K \rangle \langle A_{13} | \hat{1}^+_\beta | A_1 \rangle \langle I_7 | \hat{0}^-_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{B_1} t_{A_{13},I_7} t_{J_8,K_{14}}$$
$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 1^J 0^K \rangle \langle A_{13} | \hat{1}^+_\beta | A_1 \rangle \langle I_7 | \hat{0}^-_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{B_1} t_{A_{13},I_7} t_{J_8,K_{14}}$$
$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^J | \hat{g} | 0^I 0^K \rangle \langle A_{13} | \hat{1}^+_\beta | A_1 \rangle \langle I_7 | \hat{0}^-_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{B_1} t_{A_{13},J_8} t_{I_7,K_{14}}$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 1^J 0^K \rangle \langle A_{13} | \hat{1}^+_\beta | A_1 \rangle \langle I_7 | \hat{0}^-_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{B_1} t_{A_{13},J_8} t_{I_7,K_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{11}, B_1, I_9, J_8, K_{14}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^J | \hat{g} | 0^I 0^K \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{B_1} t_{A_{11},I_9} t_{J_8,K_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{11}, B_1, I_{10}, J_9, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^J | \hat{g} | 1^I 0^K \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{B_1} t_{A_{11},I_{10}} t_{J_9,K_{12}}$$
$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^J 0^K \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{B_1} t_{A_{11},I_{10}} t_{J_9,K_{12}}$$
$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^J | \hat{g} | 1^I 0^K \rangle \langle A_{11} | \hat{1}^+_\alpha | A_1 \rangle \langle I_{10} | \hat{1}^-_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{B_1} t_{A_{11},J_9} t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|0^J0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_{10},K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_8,J_7,K_{14})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|0^J0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|0^J0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_{10},J_7,K_{14})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_{10},J_{10},K_{12})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|1^I0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|1^I0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{10},K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_8,J_8,K_{14})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|1^I0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|1^I0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_{10},J_8,K_{14})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|1^I0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_8,K_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_9,J_9,K_{11})\rangle =$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|0^I1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_9,K_{11}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_9,K_{11}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|0^I1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_9,K_{11}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_9,K_{11}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_7,J_7,K_{13})\rangle =$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|0^I1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_7,K_{13}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_7,K_{13}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|0^I1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_7,K_{13}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_7,K_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_9,J_7,K_{13})\rangle =$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|0^I1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_7,K_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_9,J_{10},K_{11})\rangle =$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_{10},K_{11}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_{10},K_{11}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_9,K_{11}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_9,K_{11}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_7,J_8,K_{13})\rangle =$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},I_7}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_9,J_8,K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{11},I_9}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_{10},J_9,K_{11})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|0^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|0^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_{10},K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_8,J_7,K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|0^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|0^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_{10},J_7,K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|1^I1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_{10},J_{10},K_{11})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|1^I1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|1^I1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_{10},K_{11}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_8,J_8,K_{13})\rangle =$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|1^I1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},I_8}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|1^I1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_8,K_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},B_1,I_{10},J_8,K_{13})\rangle =$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|1^I1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{11},I_{10}}t_{J_8,K_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_7,J_9,K_{14})\rangle =$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|0^J0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_7,K_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_8,J_9,K_{14})\rangle =$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{12},J_9}t_{I_8,K_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{12},B_1,I_7,J_{10},K_{14})\rangle =$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^J0^K\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{12},J_{10}}t_{I_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_8, J_{10}, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^A 1^I|\hat{g}|1^J 0^K\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{10}|\hat{1}_\alpha^-|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_{12}, J_{10}} t_{I_8, K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_7, J_9, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle I_7|\hat{0}_\beta^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle \langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1} t_{A_{12}, J_9} t_{I_7, K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_8, J_9, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^A 1^I|\hat{g}|0^J 1^K\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle \langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1} t_{A_{12}, J_9} t_{I_8, K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_7, J_{10}, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^A 0^I|\hat{g}|1^J 1^K\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle I_7|\hat{0}_\beta^-|I_0\rangle \langle J_{10}|\hat{1}_\alpha^-|J_0\rangle \langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1} t_{A_{12}, J_{10}} t_{I_7, K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_1, I_8, J_{10}, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^A 1^I|\hat{g}|1^J 1^K\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{10}|\hat{1}_\alpha^-|J_0\rangle \langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1} t_{A_{12}, J_{10}} t_{I_8, K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_7, J_9, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 1^A 0^I|\hat{g}|0^J 0^K\rangle \langle A_{11}|\hat{1}_\alpha^+|A_1\rangle \langle I_7|\hat{0}_\beta^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_{11}, J_9} t_{I_7, K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_8, J_9, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 1^A 1^I|\hat{g}|0^J 0^K\rangle \langle A_{11}|\hat{1}_\alpha^+|A_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_{11}, J_9} t_{I_8, K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_1, I_7, J_{10}, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_7,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_8,J_{10},K_{14})\rangle =$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J0^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_8,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_7,J_9,K_{13})\rangle =$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_7,K_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_8,J_9,K_{13})\rangle =$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|0^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{11},J_9}t_{I_8,K_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_7,J_{10},K_{13})\rangle =$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_7|\hat{0}^-_{\bar\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_7,K_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_1,I_8,J_{10},K_{13})\rangle =$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J1^K\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle I_8|\hat{1}^-_{\bar\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{11},J_{10}}t_{I_8,K_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_1,I_{12},J_9,K_7)\rangle =$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|0^K0^J\rangle\langle A_{14}|\hat{0}^+_{\bar\beta}|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_{12},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_1,I_{12},J_9,K_8)\rangle =$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^K0^J\rangle\langle A_{14}|\hat{0}^+_{\bar\beta}|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_{12},J_9}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{14}, B_1, I_{12}, J_{10}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_{14},K_7} t_{I_{12},J_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{14}, B_1, I_{12}, J_{10}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_{14},K_8} t_{I_{12},J_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{13}, B_1, I_{12}, J_9, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_{13},K_7} t_{I_{12},J_9}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{13}, B_1, I_{12}, J_9, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_{13},K_8} t_{I_{12},J_9}$$

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$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_{13},K_7} t_{I_{12},J_{10}}$$

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$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_{13},K_8} t_{I_{12},J_{10}}$$

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$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_{14},K_7} t_{I_{11},J_9}$$

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$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^A 1^I|\hat{g}|1^K 0^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1} t_{A_{14},K_8} t_{I_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_{11}, J_{10}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^A 1^I|\hat{g}|0^K 1^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle \langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1} t_{A_{14},K_7} t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_{11}, J_{10}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^A 1^I|\hat{g}|1^K 1^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle \langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1} t_{A_{14},K_8} t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_{11}, J_9, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 1^A 1^I|\hat{g}|0^K 0^J\rangle \langle A_{13}|\hat{1}^+_\beta|A_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1} t_{A_{13},K_7} t_{I_{11},J_9}$$

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$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 1^A 1^I|\hat{g}|1^K 0^J\rangle \langle A_{13}|\hat{1}^+_\beta|A_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1} t_{A_{13},K_8} t_{I_{11},J_9}$$

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$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 1^A 1^I|\hat{g}|0^K 1^J\rangle \langle A_{13}|\hat{1}^+_\beta|A_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle \langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1} t_{A_{13},K_7} t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_{11}, J_{10}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 1^A 1^I|\hat{g}|1^K 1^J\rangle \langle A_{13}|\hat{1}^+_\beta|A_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle \langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1} t_{A_{13},K_8} t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_{12}, J_7, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{14}|\hat{0}_{\beta}^+|A_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_7|\hat{0}_{\beta}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_{12}, J_8, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^J 0^K\rangle\langle A_{14}|\hat{0}_{\beta}^+|A_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_{12}, J_7, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_{14}|\hat{0}_{\beta}^+|A_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_7|\hat{0}_{\beta}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_{12}, J_8, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_{14}|\hat{0}_{\beta}^+|A_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_{12}, J_7, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{13}|\hat{1}_{\beta}^+|A_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_7|\hat{0}_{\beta}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_{12}, J_8, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^J 0^K\rangle\langle A_{13}|\hat{1}_{\beta}^+|A_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_{12}, J_7, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_{13}|\hat{1}_{\beta}^+|A_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_7|\hat{0}_{\beta}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_{12}, J_8, K_{10})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle1^A0^I|\hat{g}|1^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_{12},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_{11},J_7,K_9)\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle0^A1^I|\hat{g}|0^J0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_{11},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_{11},J_8,K_9)\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle0^A1^I|\hat{g}|1^J0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_{11},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_{11},J_7,K_{10})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle0^A1^I|\hat{g}|0^J1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{14},J_7}t_{I_{11},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_{11},J_8,K_{10})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle0^A1^I|\hat{g}|1^J1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_{11},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_{11},J_7,K_9)\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle1^A1^I|\hat{g}|0^J0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_{11},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_{11},J_8,K_9)\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle1^A1^I|\hat{g}|1^J0^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_{11},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_{11},J_7,K_{10})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle1^A1^I|\hat{g}|0^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_{11}, J_8, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{12}, J_{12}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{14}, J_{14}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{12}, J_{14}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{12}, J_{12}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{14}, J_{14}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_7,I_{14}} t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_7,I_{14}} t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_7,J_{14}} t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_7,J_{14}} t_{I_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{12}, J_{14}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_9,I_{12}} t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{12}, J_{12}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_{10},I_{12}} t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_{10},I_{12}} t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{14}, J_{14}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_8,I_{14}} t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_8,I_{14}} t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_8,J_{14}} t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_8,J_{14}} t_{I_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{12}, J_{14}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_{10},I_{12}} t_{J_{14},K_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{10}, B_1, I_{12}, J_{12}, K_{10}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^J | \hat{g} | 0^I 1^K \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{B_1} t_{A_{10}, I_{12}} t_{J_{12}, K_{10}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 0^J 1^K \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{B_1} t_{A_{10}, I_{12}} t_{J_{12}, K_{10}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^J | \hat{g} | 0^I 1^K \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{B_1} t_{A_{10}, J_{12}} t_{I_{12}, K_{10}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 0^J 1^K \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{B_1} t_{A_{10}, J_{12}} t_{I_{12}, K_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_1, I_{14}, J_{14}, K_8) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^J | \hat{g} | 0^I 1^K \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_8 | \hat{1}_\beta^- | K_0 \rangle t_{B_1} t_{A_8, I_{14}} t_{J_{14}, K_8}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 0^J 1^K \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_8 | \hat{1}_\beta^- | K_0 \rangle t_{B_1} t_{A_8, I_{14}} t_{J_{14}, K_8}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^J | \hat{g} | 0^I 1^K \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_8 | \hat{1}_\beta^- | K_0 \rangle t_{B_1} t_{A_8, J_{14}} t_{I_{14}, K_8}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 0^J 1^K \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_8 | \hat{1}_\beta^- | K_0 \rangle t_{B_1} t_{A_8, J_{14}} t_{I_{14}, K_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{10}, B_1, I_{12}, J_{14}, K_8) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^J | \hat{g} | 0^I 1^K \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_8 | \hat{1}_\beta^- | K_0 \rangle t_{B_1} t_{A_{10}, I_{12}} t_{J_{14}, K_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_9, B_1, I_{12}, J_{11}, K_9) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 0^I 0^K \rangle \langle A_9 | \hat{0}_\alpha^- | A_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_9, I_{12}} t_{J_{11}, K_9}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 1^J 0^K \rangle \langle A_9 | \hat{0}_\alpha^- | A_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_9, I_{12}} t_{J_{11}, K_9}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 0^I 0^K \rangle \langle A_9 | \hat{0}_\alpha^- | A_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_9, J_{11}} t_{I_{12}, K_9}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 1^J 0^K \rangle \langle A_9 | \hat{0}_\alpha^- | A_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_9, J_{11}} t_{I_{12}, K_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_1, I_{14}, J_{13}, K_7) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 0^I 0^K \rangle \langle A_7 | \hat{0}_\beta^- | A_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{B_1} t_{A_7, I_{14}} t_{J_{13}, K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^J0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|0^I0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^J0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_{14},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_1,I_{12},J_{13},K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|0^I0^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{13},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_1,I_{12},J_{11},K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|0^I1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^J1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|0^I1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^J1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_{12},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_{14},J_{13},K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|0^I1^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^J1^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|0^I1^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^J1^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_{14},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_1,I_{12},J_{13},K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|0^I1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{13},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_1,I_{12},J_{11},K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I0^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_{12},K_9}$$

$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_{14},J_{13},K_7)\rangle =$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_{14},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_{14},K_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_{12},J_{13},K_7)\rangle =$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_{13},K_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_{12},J_{11},K_{10})\rangle =$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_{12},K_{10}}$$

$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_{14},J_{13},K_8)\rangle =$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{12}, J_{13}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_{10},I_{12}} t_{J_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{11}, J_{12}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_{12},K_9}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_{12},K_9}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_{11},K_9}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_{11},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{13}, J_{14}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_7,I_{13}} t_{J_{14},K_7}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_7,I_{13}} t_{J_{14},K_7}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_7,J_{14}} t_{I_{13},K_7}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_7,J_{14}} t_{I_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{11}, J_{14}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{11}, J_{12}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_{12},K_{10}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^J 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_{12},K_{10}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_{11},K_{10}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^J 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{13}, J_{14}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_7,I_{13}} t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^J 1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_7,I_{13}} t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_7,J_{14}} t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^J 1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_7,J_{14}} t_{I_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{11}, J_{14}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{11}, J_{12}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_{10},I_{11}} t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_{10},I_{11}} t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_{11},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{13}, J_{14}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_8,I_{13}} t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_8,I_{13}} t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_8,J_{14}} t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_8,J_{14}} t_{I_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{11}, J_{14}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_{10},I_{11}} t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{11}, J_{12}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 1^K\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1} t_{A_{10},I_{11}} t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 1^K\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1} t_{A_{10},I_{11}} t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 1^K\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 1^K\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle \langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{13}, J_{14}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 1^K\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_8,I_{13}} t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 1^K\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_8,I_{13}} t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 1^K\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_8,J_{14}} t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 1^K\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_8,J_{14}} t_{I_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{11}, J_{14}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 1^K\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_{10},I_{11}} t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{11}, J_{11}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|1^I 0^K\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^J 0^K\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|1^I 0^K\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_9,J_{11}} t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^J 0^K\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1} t_{A_9,J_{11}} t_{I_{11},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{13}, J_{13}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|1^I 0^K\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_7,I_{13}} t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^J 0^K\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_7,I_{13}} t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_{13},K_7}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_{13},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_1,I_{11},J_{13},K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_{13},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_1,I_{11},J_{11},K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_{11},K_{10}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_{11},K_{10}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_{11},K_{10}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_{11},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_{13},J_{13},K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_{13},K_8}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_{13},K_8}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_{13},K_8}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_{13},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_1,I_{11},J_{13},K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_{13},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_1,I_{11},J_{11},K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|1^I0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_{11},K_9}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_{11},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_{13},J_{13},K_7)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_{13},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_{11},J_{13},K_7)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_{13},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_{11},J_{11},K_{10})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_{11},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_{11},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_{13},J_{13},K_8)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_{13},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{11}, J_{13}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 1^K\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{12}, J_{14}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{12}, J_{14}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^J 0^K\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{12}, J_{14}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{12}, J_{14}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^J 1^K\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{12}, J_{13}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^J 0^K\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{12}, J_{13}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|1^J 0^K\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{12}, J_{13}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^J1^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_{12},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_1,I_{12},J_{13},K_{10})\rangle =$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_{12},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_{11},J_{14},K_9)\rangle =$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_{11},K_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_1,I_{11},J_{14},K_9)\rangle =$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|0^J0^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_{11},K_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_{11},J_{14},K_{10})\rangle =$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J1^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_{11},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_1,I_{11},J_{14},K_{10})\rangle =$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|0^J1^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_{11},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_{11},J_{13},K_9)\rangle =$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_{11},K_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_1,I_{11},J_{13},K_9)\rangle =$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J0^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_{11},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{11}, J_{13}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^J 1^K\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1} t_{A_7,J_{13}} t_{I_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{11}, J_{13}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^J 1^K\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{12}, J_9, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 0^K\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,I_{12}} t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,I_{12}} t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 0^K\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,K_{12}} t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,K_{12}} t_{I_{12},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{14}, J_7, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 0^K\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_7|\hat{0}_\beta^-|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_7,I_{14}} t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_7|\hat{0}_\beta^-|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_7,I_{14}} t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 0^K\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_7|\hat{0}_\beta^-|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_7,K_{14}} t_{I_{14},J_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_7|\hat{0}_\beta^-|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_7,K_{14}} t_{I_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{12}, J_7, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 0^K\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_7|\hat{0}_\beta^-|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_9,I_{12}} t_{J_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{12}, J_{10}, K_{12})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|0^I0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{10},K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|0^K1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{10},K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|0^I0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_{12},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|0^K1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_{12},J_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_{14},J_8,K_{14})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|0^I0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|0^K1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|0^I0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_7,K_{14}}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|0^K1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_7,K_{14}}t_{I_{14},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_1,I_{12},J_8,K_{14})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|0^I0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_8,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_1,I_{12},J_9,K_{12})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|0^I0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|0^I0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},K_{12}}t_{I_{12},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},K_{12}}t_{I_{12},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_1,I_{14},J_7,K_{14})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|0^I0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|0^I0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_8,K_{14}}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_8,K_{14}}t_{I_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{12}, J_7, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|0^I 0^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1} t_{A_{10},I_{12}} t_{J_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{12}, J_{10}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1} t_{A_{10},I_{12}} t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1} t_{A_{10},I_{12}} t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1} t_{A_{10},K_{12}} t_{I_{12},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1} t_{A_{10},K_{12}} t_{I_{12},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{14}, J_8, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1} t_{A_8,I_{14}} t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1} t_{A_8,I_{14}} t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1} t_{A_8,K_{14}} t_{I_{14},J_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1} t_{A_8,K_{14}} t_{I_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{12}, J_8, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|0^I 0^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1} t_{A_{10},I_{12}} t_{J_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{12}, J_9, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,I_{12}} t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,I_{12}} t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,K_{11}} t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,K_{11}} t_{I_{12},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{14}, J_7, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_7,K_{13}}t_{I_{14},J_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_7,K_{13}}t_{I_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{12}, J_7, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{12}, J_{10}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,K_{11}}t_{I_{12},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,K_{11}}t_{I_{12},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{14}, J_8, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_7,K_{13}}t_{I_{14},J_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_7,K_{13}}t_{I_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{12}, J_8, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_8,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{12}, J_9, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},K_{11}}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},K_{11}}t_{I_{12},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{14}, J_7, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_8,K_{13}}t_{I_{14},J_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_8,K_{13}}t_{I_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{12}, J_7, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{12}, J_{10}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},K_{11}}t_{I_{12},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},K_{11}}t_{I_{12},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{14}, J_8, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^K1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_8,K_{13}}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^K1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_8,K_{13}}t_{I_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_{12},J_8,K_{13})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|0^I1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1}t_{A_{10},I_{12}}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_{11},J_9,K_{12})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_{11},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_{13},J_7,K_{14})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_7,K_{14}}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_7,K_{14}}t_{I_{13},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_{11},J_7,K_{14})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_{11},J_{10},K_{12})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|1^I0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_{11},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_{13},J_8,K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_7,K_{14}}t_{I_{13},J_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_7,K_{14}}t_{I_{13},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_{11},J_8,K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_{11},J_9,K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},K_{12}}t_{I_{11},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},K_{12}}t_{I_{11},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_{13},J_7,K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_8,K_{14}}t_{I_{13},J_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_8,K_{14}}t_{I_{13},J_7}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{11}, J_7, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^J|\hat{g}|1^I 0^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_7,K_{14}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{11}, J_{10}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},K_{12}}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},K_{12}}t_{I_{11},J_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_8, B_1, I_{13}, J_8, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_8,I_{13}}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_8,K_{14}}t_{I_{13},J_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_8,K_{14}}t_{I_{13},J_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{11}, J_8, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^J|\hat{g}|1^I 0^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_8,K_{14}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_9, B_1, I_{11}, J_9, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_9,K_{11}}t_{I_{11},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_9,K_{11}}t_{I_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{13}, J_7, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,I_{13}} t_{J_7,K_{13}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,I_{13}} t_{J_7,K_{13}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,K_{13}} t_{I_{13},J_7}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,K_{13}} t_{I_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{11}, J_7, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{11}, J_{10}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_{10},K_{11}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_{10},K_{11}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,K_{11}} t_{I_{11},J_{10}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,K_{11}} t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{13}, J_8, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,I_{13}} t_{J_8,K_{13}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,I_{13}} t_{J_8,K_{13}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,K_{13}} t_{I_{13},J_8}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,K_{13}} t_{I_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{11}, J_8, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_8,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{11}, J_9, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_{10},I_{11}} t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_{10},I_{11}} t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_{10},K_{11}} t_{I_{11},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_{10},K_{11}} t_{I_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{13}, J_7, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_8,I_{13}} t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_8,I_{13}} t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_8,K_{13}} t_{I_{13},J_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_8,K_{13}} t_{I_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{11}, J_7, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^J|\hat{g}|1^I 1^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_{10},I_{11}} t_{J_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{11}, J_{10}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_{10},I_{11}} t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_{10},I_{11}} t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_{10},K_{11}} t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_{10},K_{11}} t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{13}, J_8, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_8,I_{13}} t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_8,I_{13}} t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|1^I1^K\rangle\langle A_8|\hat{1}_{\beta}^-|A_1\rangle\langle I_{13}|\hat{1}_{\beta}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_1}t_{A_8,K_{13}}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^K1^J\rangle\langle A_8|\hat{1}_{\beta}^-|A_1\rangle\langle I_{13}|\hat{1}_{\beta}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_1}t_{A_8,K_{13}}t_{I_{13},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_{11},J_8,K_{13})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^J|\hat{g}|1^I1^K\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_1}t_{A_{10},I_{11}}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_{12},J_9,K_{14})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|0^K0^J\rangle\langle A_7|\hat{0}_{\beta}^-|A_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{B_1}t_{A_7,K_{14}}t_{I_{12},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_{12},J_9,K_{14})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_8|\hat{1}_{\beta}^-|A_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{B_1}t_{A_8,K_{14}}t_{I_{12},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_{12},J_{10},K_{14})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|0^K1^J\rangle\langle A_7|\hat{0}_{\beta}^-|A_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{B_1}t_{A_7,K_{14}}t_{I_{12},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_{12},J_{10},K_{14})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_8|\hat{1}_{\beta}^-|A_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{B_1}t_{A_8,K_{14}}t_{I_{12},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_{12},J_9,K_{13})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^K0^J\rangle\langle A_7|\hat{0}_{\beta}^-|A_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_1}t_{A_7,K_{13}}t_{I_{12},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_{12},J_9,K_{13})\rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 1^K 0^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{B_1} t_{A_8, K_{13}} t_{I_{12}, J_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_1, I_{12}, J_{10}, K_{13}) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 1^K 1^J \rangle \langle A_7 | \hat{0}_\beta^- | A_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{B_1} t_{A_7, K_{13}} t_{I_{12}, J_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_1, I_{12}, J_{10}, K_{13}) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 1^K 1^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{B_1} t_{A_8, K_{13}} t_{I_{12}, J_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_1, I_{11}, J_9, K_{14}) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 0^K 0^J \rangle \langle A_7 | \hat{0}_\beta^- | A_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{B_1} t_{A_7, K_{14}} t_{I_{11}, J_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_1, I_{11}, J_9, K_{14}) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^K 0^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{B_1} t_{A_8, K_{14}} t_{I_{11}, J_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_1, I_{11}, J_{10}, K_{14}) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 0^K 1^J \rangle \langle A_7 | \hat{0}_\beta^- | A_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{B_1} t_{A_7, K_{14}} t_{I_{11}, J_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_1, I_{11}, J_{10}, K_{14}) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^K 1^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{B_1} t_{A_8, K_{14}} t_{I_{11}, J_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_1, I_{11}, J_9, K_{13}) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 1^K 0^J \rangle \langle A_7 | \hat{0}_\beta^- | A_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{B_1} t_{A_7, K_{13}} t_{I_{11}, J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{11}, J_9, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1} t_{A_8,K_{13}} t_{I_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{11}, J_{10}, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1} t_{A_7,K_{13}} t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{11}, J_{10}, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1} t_{A_8,K_{13}} t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_9, J_{12}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_{14},K_7} t_{I_9,J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_9, J_{12}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_{14},K_8} t_{I_9,J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_{10}, J_{12}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_{14},K_7} t_{I_{10},J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_{10}, J_{12}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_{14},K_8} t_{I_{10},J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_9,J_{12},K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_{13}|\hat{1}^+_{\bar\beta}|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_7|\hat{0}^-_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{13},K_7}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_9,J_{12},K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^K0^J\rangle\langle A_{13}|\hat{1}^+_{\bar\beta}|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_8|\hat{1}^-_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_{10},J_{12},K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|0^K0^J\rangle\langle A_{13}|\hat{1}^+_{\bar\beta}|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_7|\hat{0}^-_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{13},K_7}t_{I_{10},J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_{10},J_{12},K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^K0^J\rangle\langle A_{13}|\hat{1}^+_{\bar\beta}|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_8|\hat{1}^-_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{13},K_8}t_{I_{10},J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_9,J_{11},K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|0^K1^J\rangle\langle A_{14}|\hat{0}^+_{\bar\beta}|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_7|\hat{0}^-_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_9,J_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_9,J_{11},K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^K1^J\rangle\langle A_{14}|\hat{0}^+_{\bar\beta}|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_8|\hat{1}^-_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{14},K_8}t_{I_9,J_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_{10},J_{11},K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K1^J\rangle\langle A_{14}|\hat{0}^+_{\bar\beta}|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_7|\hat{0}^-_{\bar\beta}|K_0\rangle t_{B_1}t_{A_{14},K_7}t_{I_{10},J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_{10}, J_{11}, K_8)\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I|\hat{g}|1^K 1^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle \langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1} t_{A_{14}, K_8} t_{I_{10}, J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_9, J_{11}, K_7)\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I|\hat{g}|0^K 1^J\rangle \langle A_{13}|\hat{1}^+_\beta|A_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle \langle K_7|\hat{0}^-_\beta|K_0\rangle t_{B_1} t_{A_{13}, K_7} t_{I_9, J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_1, I_9, J_{11}, K_8)\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I|\hat{g}|1^K 1^J\rangle \langle A_{13}|\hat{1}^+_\beta|A_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle \langle K_8|\hat{1}^-_\beta|K_0\rangle t_{B_1} t_{A_{13}, K_8} t_{I_9, J_{11}}$$

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$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_1, I_7, J_{12}, K_9)\rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^J|\hat{g}|0^I 0^K\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle \langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{B_1} t_{A_{14}, I_7} t_{J_{12}, K_9}$$

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$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^J|\hat{g}|0^I 1^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_{12},K_{10}}$$

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$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{14}, J_{12}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_{14},K_7}$$

$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{14}, J_{12}, K_8)\rangle =$

$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_{14},K_8}$

$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{14}, J_{12}, K_7)\rangle =$

$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_{14},K_7}$

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$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{14}, J_{11}, K_7)\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I|\hat{g}|1^J 0^K\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle t_{B_1} t_{A_9,J_{11}} t_{I_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{14}, J_{11}, K_8)\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I|\hat{g}|1^J 1^K\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle t_{B_1} t_{A_9,J_{11}} t_{I_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{14}, J_{11}, K_7)\rangle =$$

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$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_{14},J_{12},K_9)\rangle=$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|0^I0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_7,I_{14}}t_{J_{12},K_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_1,I_{14},J_{12},K_9)\rangle=$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^J|\hat{g}|0^I0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_1}t_{A_8,I_{14}}t_{J_{12},K_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_{14},J_{12},K_{10})\rangle=$$
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$$\langle (A_1,B_1)|\hat{H}|(A_7,B_1,I_{13},J_{12},K_{10})\rangle=$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{B_1}t_{A_7,I_{13}}t_{J_{12},K_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_1, I_{13}, J_{12}, K_{10}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^J | \hat{g} | 1^I 1^K \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{B_1} t_{A_8, I_{13}} t_{J_{12}, K_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_1, I_{14}, J_{11}, K_9) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 0^I 0^K \rangle \langle A_7 | \hat{0}_\beta^- | A_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_7, I_{14}} t_{J_{11}, K_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_1, I_{14}, J_{11}, K_9) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^J | \hat{g} | 0^I 0^K \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_8, I_{14}} t_{J_{11}, K_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_1, I_{14}, J_{11}, K_{10}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 0^I 1^K \rangle \langle A_7 | \hat{0}_\beta^- | A_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{B_1} t_{A_7, I_{14}} t_{J_{11}, K_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_1, I_{14}, J_{11}, K_{10}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^J | \hat{g} | 0^I 1^K \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{B_1} t_{A_8, I_{14}} t_{J_{11}, K_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_1, I_{13}, J_{11}, K_9) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 1^I 0^K \rangle \langle A_7 | \hat{0}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_7, I_{13}} t_{J_{11}, K_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_1, I_{13}, J_{11}, K_9) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^J | \hat{g} | 1^I 0^K \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{B_1} t_{A_8, I_{13}} t_{J_{11}, K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{13}, J_{11}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_7,I_{13}} t_{J_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{13}, J_{11}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{B_1} t_{A_8,I_{13}} t_{J_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_9, J_{12}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,K_{12}} t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,K_{12}} t_{I_9,J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_7, J_{14}, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1} t_{A_7,J_{14}} t_{I_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1} t_{A_7,J_{14}} t_{I_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1} t_{A_7,K_{14}} t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1} t_{A_7,K_{14}} t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_7, J_{12}, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{10}, J_{12}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_{10},J_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_8,J_{14},K_{14})\rangle =$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_7,J_{14}}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_7,K_{14}}t_{I_8,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_7,K_{14}}t_{I_8,J_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_8,J_{12},K_{14})\rangle =$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_8,K_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_9,J_{12},K_{12})\rangle =$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},J_{12}}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},K_{12}}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},K_{12}}t_{I_9,J_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_7,J_{14},K_{14})\rangle =$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_8,J_{14}}t_{I_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_8,K_{14}}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1}t_{A_8,K_{14}}t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_7, J_{12}, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^J 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{10}, J_{12}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},K_{12}} t_{I_{10},J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},K_{12}} t_{I_{10},J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_8, J_{14}, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_8,J_{14}} t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_8,J_{14}} t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_8,K_{14}} t_{I_8,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_8,K_{14}} t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_8, J_{12}, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_9, J_{12}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,K_{11}} t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,K_{11}} t_{I_9,J_{12}}$$

$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_7, J_{14}, K_{13})\rangle =$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle \langle A_7|\hat{0}^-_\beta|A_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,J_{14}} t_{I_7,K_{13}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle \langle A_7|\hat{0}^-_\beta|A_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,J_{14}} t_{I_7,K_{13}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle \langle A_7|\hat{0}^-_\beta|A_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,K_{13}} t_{I_7,J_{14}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 0^J\rangle \langle A_7|\hat{0}^-_\beta|A_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,K_{13}} t_{I_7,J_{14}}$

$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_7, J_{12}, K_{13})\rangle =$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^J 1^K\rangle \langle A_9|\hat{0}^-_\alpha|A_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_7,K_{13}}$

$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_{10}, J_{12}, K_{11})\rangle =$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^J 1^K\rangle \langle A_9|\hat{0}^-_\alpha|A_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^K 0^J\rangle \langle A_9|\hat{0}^-_\alpha|A_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_{10},K_{11}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^J 1^K\rangle \langle A_9|\hat{0}^-_\alpha|A_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,K_{11}} t_{I_{10},J_{12}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^K 0^J\rangle \langle A_9|\hat{0}^-_\alpha|A_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_9,K_{11}} t_{I_{10},J_{12}}$

$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_8, J_{14}, K_{13})\rangle =$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^J 1^K\rangle \langle A_7|\hat{0}^-_\beta|A_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,J_{14}} t_{I_8,K_{13}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^K 0^J\rangle \langle A_7|\hat{0}^-_\beta|A_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,J_{14}} t_{I_8,K_{13}}$

$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^J 1^K\rangle \langle A_7|\hat{0}^-_\beta|A_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,K_{13}} t_{I_8,J_{14}}$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^K 0^J\rangle \langle A_7|\hat{0}^-_\beta|A_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_7,K_{13}} t_{I_8,J_{14}}$

$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_8, J_{12}, K_{13})\rangle =$

$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^J 1^K\rangle \langle A_9|\hat{0}^-_\alpha|A_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_8,K_{13}}$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_9, J_{12}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},K_{11}} t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},K_{11}} t_{I_9,J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_7, J_{14}, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1} t_{A_8,J_{14}} t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1} t_{A_8,J_{14}} t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1} t_{A_8,K_{13}} t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1} t_{A_8,K_{13}} t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_7, J_{12}, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{10}, J_{12}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},J_{12}} t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 1^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},K_{11}} t_{I_{10},J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},K_{11}} t_{I_{10},J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_8, J_{14}, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1} t_{A_8,J_{14}} t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^K 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{B_1} t_{A_8,J_{14}} t_{I_8,K_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^J 1^K \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{B_1} t_{A_8,K_{13}} t_{I_8,J_{14}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 1^K 0^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{B_1} t_{A_8,K_{13}} t_{I_8,J_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{10}, B_1, I_8, J_{12}, K_{13}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^J 1^K \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{B_1} t_{A_{10},J_{12}} t_{I_8,K_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_9, B_1, I_9, J_{11}, K_{12}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 1^J 0^K \rangle \langle A_9 | \hat{0}_\alpha^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_9,J_{11}} t_{I_9,K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 0^K 1^J \rangle \langle A_9 | \hat{0}_\alpha^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_9,J_{11}} t_{I_9,K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 1^J 0^K \rangle \langle A_9 | \hat{0}_\alpha^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_9,K_{12}} t_{I_9,J_{11}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 0^K 1^J \rangle \langle A_9 | \hat{0}_\alpha^- | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_9,K_{12}} t_{I_9,J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_1, I_7, J_{13}, K_{14}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 1^J 0^K \rangle \langle A_7 | \hat{0}_\beta^- | A_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{B_1} t_{A_7,J_{13}} t_{I_7,K_{14}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 0^K 1^J \rangle \langle A_7 | \hat{0}_\beta^- | A_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{B_1} t_{A_7,J_{13}} t_{I_7,K_{14}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 1^J 0^K \rangle \langle A_7 | \hat{0}_\beta^- | A_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{B_1} t_{A_7,K_{14}} t_{I_7,J_{13}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 0^K 1^J \rangle \langle A_7 | \hat{0}_\beta^- | A_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{B_1} t_{A_7,K_{14}} t_{I_7,J_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_9, B_1, I_7, J_{11}, K_{14}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 1^J 0^K \rangle \langle A_9 | \hat{0}_\alpha^- | A_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{B_1} t_{A_9,J_{11}} t_{I_7,K_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_9, B_1, I_{10}, J_{11}, K_{12}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 1^J 0^K \rangle \langle A_9 | \hat{0}_\alpha^- | A_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_9,J_{11}} t_{I_{10},K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 0^K 1^J \rangle \langle A_9 | \hat{0}_\alpha^- | A_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_9,J_{11}} t_{I_{10},K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_{10},J_{11}}$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_{10},J_{11}}$$

$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_8,J_{13},K_{14})\rangle=$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_8,K_{14}}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_8,K_{14}}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_7,K_{14}}t_{I_8,J_{13}}$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_7,K_{14}}t_{I_8,J_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_8,J_{11},K_{14})\rangle=$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J0^K\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_8,K_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_9,J_{11},K_{12})\rangle=$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J0^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_9,K_{12}}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_9,K_{12}}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J0^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},K_{12}}t_{I_9,J_{11}}$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},K_{12}}t_{I_9,J_{11}}$$

$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_7,J_{13},K_{14})\rangle=$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J0^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_7,K_{14}}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_7,K_{14}}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J0^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_8,K_{14}}t_{I_7,J_{13}}$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{B_1}t_{A_8,K_{14}}t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_7, J_{11}, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|1^J 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_{10},J_{11}} t_{I_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{10}, J_{11}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},J_{11}} t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},J_{11}} t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},K_{12}} t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},K_{12}} t_{I_{10},J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_8, J_{13}, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_8,K_{14}} t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_8,K_{14}} t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_8, J_{11}, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{B_1} t_{A_{10},J_{11}} t_{I_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_9, J_{11}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,J_{11}} t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,J_{11}} t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,K_{11}} t_{I_9,J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,K_{11}} t_{I_9,J_{11}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_7, B_1, I_7, J_{13}, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_7|\hat{0}_{\beta}^-|A_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_7|\hat{0}_{\beta}^-|A_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_7|\hat{0}_{\beta}^-|A_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_1}t_{A_7,K_{13}}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_7|\hat{0}_{\beta}^-|A_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_1}t_{A_7,K_{13}}t_{I_7,J_{13}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_9, B_1, I_7, J_{11}, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^J 1^K\rangle\langle A_9|\hat{0}_{\alpha}^-|A_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_7,K_{13}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_9, B_1, I_{10}, J_{11}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_9|\hat{0}_{\alpha}^-|A_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^+|K_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_9|\hat{0}_{\alpha}^-|A_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^+|K_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_9|\hat{0}_{\alpha}^-|A_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^+|K_0\rangle t_{B_1}t_{A_9,K_{11}}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_9|\hat{0}_{\alpha}^-|A_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^+|K_0\rangle t_{B_1}t_{A_9,K_{11}}t_{I_{10},J_{11}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_7, B_1, I_8, J_{13}, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_7|\hat{0}_{\beta}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_7|\hat{0}_{\beta}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_1}t_{A_7,J_{13}}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_7|\hat{0}_{\beta}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_1}t_{A_7,K_{13}}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_7|\hat{0}_{\beta}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_1}t_{A_7,K_{13}}t_{I_8,J_{13}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_9, B_1, I_8, J_{11}, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_9|\hat{0}_{\alpha}^-|A_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_8,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_9, J_{11}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A0^I|\hat{g}|1^K1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},K_{11}}t_{I_9,J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A0^I|\hat{g}|1^K1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},K_{11}}t_{I_9,J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_7, J_{13}, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A0^I|\hat{g}|1^K1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_8,K_{13}}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A0^I|\hat{g}|1^K1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_8,K_{13}}t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_7, J_{11}, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{10}, J_{11}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A1^I|\hat{g}|1^J1^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A1^I|\hat{g}|1^K1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A1^I|\hat{g}|1^J1^K\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},K_{11}}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A1^I|\hat{g}|1^K1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{10},K_{11}}t_{I_{10},J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_8, J_{13}, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A1^I|\hat{g}|1^J1^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A1^I|\hat{g}|1^K1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_8,J_{13}}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^A1^I|\hat{g}|1^J1^K\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{B_1}t_{A_8,K_{13}}t_{I_8,J_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_8|\hat{1}_{\bar\beta}^-|A_1\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{B_1}t_{A_8,K_{13}}t_{I_8,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_8,J_{11},K_{13})\rangle =$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 1^K\rangle\langle A_{10}|\hat{1}_{\alpha}^-|A_1\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{B_1}t_{A_{10},J_{11}}t_{I_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_9,J_{12},K_{14})\rangle =$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_7|\hat{0}_{\bar\beta}^-|A_1\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{14}|\hat{0}_{\bar\beta}^+|K_0\rangle t_{B_1}t_{A_7,K_{14}}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_9,J_{12},K_{14})\rangle =$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_8|\hat{1}_{\bar\beta}^-|A_1\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{14}|\hat{0}_{\bar\beta}^+|K_0\rangle t_{B_1}t_{A_8,K_{14}}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_{10},J_{12},K_{14})\rangle =$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_7|\hat{0}_{\bar\beta}^-|A_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{14}|\hat{0}_{\bar\beta}^+|K_0\rangle t_{B_1}t_{A_7,K_{14}}t_{I_{10},J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_{10},J_{12},K_{14})\rangle =$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_8|\hat{1}_{\bar\beta}^-|A_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{14}|\hat{0}_{\bar\beta}^+|K_0\rangle t_{B_1}t_{A_8,K_{14}}t_{I_{10},J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_1,I_9,J_{12},K_{13})\rangle =$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_7|\hat{0}_{\bar\beta}^-|A_1\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{B_1}t_{A_7,K_{13}}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_1,I_9,J_{12},K_{13})\rangle =$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^K 0^J\rangle\langle A_8|\hat{1}_{\bar\beta}^-|A_1\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{B_1}t_{A_8,K_{13}}t_{I_9,J_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_1, I_{10}, J_{12}, K_{13}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 1^K 0^J \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{12} | \hat{0}_{\alpha}^+ | J_0 \rangle \langle K_{13} | \hat{1}_{\beta}^+ | K_0 \rangle t_{B_1} t_{A_7, K_{13}} t_{I_{10}, J_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_1, I_{10}, J_{12}, K_{13}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 1^K 0^J \rangle \langle A_8 | \hat{1}_{\beta}^- | A_1 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{12} | \hat{0}_{\alpha}^+ | J_0 \rangle \langle K_{13} | \hat{1}_{\beta}^+ | K_0 \rangle t_{B_1} t_{A_8, K_{13}} t_{I_{10}, J_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_1, I_9, J_{11}, K_{14}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 0^K 1^J \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle \langle K_{14} | \hat{0}_{\beta}^+ | K_0 \rangle t_{B_1} t_{A_7, K_{14}} t_{I_9, J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_1, I_9, J_{11}, K_{14}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 0^K 1^J \rangle \langle A_8 | \hat{1}_{\beta}^- | A_1 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle \langle K_{14} | \hat{0}_{\beta}^+ | K_0 \rangle t_{B_1} t_{A_8, K_{14}} t_{I_9, J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_1, I_{10}, J_{11}, K_{14}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 0^K 1^J \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle \langle K_{14} | \hat{0}_{\beta}^+ | K_0 \rangle t_{B_1} t_{A_7, K_{14}} t_{I_{10}, J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_1, I_{10}, J_{11}, K_{14}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^K 1^J \rangle \langle A_8 | \hat{1}_{\beta}^- | A_1 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle \langle K_{14} | \hat{0}_{\beta}^+ | K_0 \rangle t_{B_1} t_{A_8, K_{14}} t_{I_{10}, J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_1, I_9, J_{11}, K_{13}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 1^K 1^J \rangle \langle A_7 | \hat{0}_{\beta}^- | A_1 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle \langle K_{13} | \hat{1}_{\beta}^+ | K_0 \rangle t_{B_1} t_{A_7, K_{13}} t_{I_9, J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_1, I_9, J_{11}, K_{13}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 1^K 1^J \rangle \langle A_8 | \hat{1}_{\bar{\beta}}^- | A_1 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle \langle K_{13} | \hat{1}_{\bar{\beta}}^+ | K_0 \rangle t_{B_1} t_{A_8, K_{13}} t_{I_9, J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_1, I_{10}, J_{11}, K_{13}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 1^K 1^J \rangle \langle A_7 | \hat{0}_{\bar{\beta}}^- | A_1 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle \langle K_{13} | \hat{1}_{\bar{\beta}}^+ | K_0 \rangle t_{B_1} t_{A_7, K_{13}} t_{I_{10}, J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_1, I_{10}, J_{11}, K_{13}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 1^K 1^J \rangle \langle A_8 | \hat{1}_{\bar{\beta}}^- | A_1 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle \langle K_{13} | \hat{1}_{\bar{\beta}}^+ | K_0 \rangle t_{B_1} t_{A_8, K_{13}} t_{I_{10}, J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{14}, B_1, I_9, J_7, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 0^J 0^K \rangle \langle A_{14} | \hat{0}_{\bar{\beta}}^+ | A_1 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle t_{B_1} t_{A_{14}, J_7} t_{I_9, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{14}, B_1, I_9, J_8, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 1^J 0^K \rangle \langle A_{14} | \hat{0}_{\bar{\beta}}^+ | A_1 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_8 | \hat{1}_{\bar{\beta}}^- | J_0 \rangle \langle K_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle t_{B_1} t_{A_{14}, J_8} t_{I_9, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{14}, B_1, I_{10}, J_7, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 0^J 0^K \rangle \langle A_{14} | \hat{0}_{\bar{\beta}}^+ | A_1 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_7 | \hat{0}_{\bar{\beta}}^- | J_0 \rangle \langle K_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle t_{B_1} t_{A_{14}, J_7} t_{I_{10}, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{14}, B_1, I_{10}, J_8, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 1^J 0^K \rangle \langle A_{14} | \hat{0}_{\bar{\beta}}^+ | A_1 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_8 | \hat{1}_{\bar{\beta}}^- | J_0 \rangle \langle K_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle t_{B_1} t_{A_{14}, J_8} t_{I_{10}, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{13}, B_1, I_9, J_7, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 0^J 0^K \rangle \langle A_{13} | \hat{1}_\beta^+ | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_{13}, J_7} t_{I_9, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{13}, B_1, I_9, J_8, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I | \hat{g} | 1^J 0^K \rangle \langle A_{13} | \hat{1}_\beta^+ | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_8 | \hat{1}_\beta^- | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_{13}, J_8} t_{I_9, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{13}, B_1, I_{10}, J_7, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 0^J 0^K \rangle \langle A_{13} | \hat{1}_\beta^+ | A_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_{13}, J_7} t_{I_{10}, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{13}, B_1, I_{10}, J_8, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I | \hat{g} | 1^J 0^K \rangle \langle A_{13} | \hat{1}_\beta^+ | A_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_8 | \hat{1}_\beta^- | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_{13}, J_8} t_{I_{10}, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{14}, B_1, I_9, J_7, K_{11}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 0^J 1^K \rangle \langle A_{14} | \hat{0}_\beta^+ | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_{14}, J_7} t_{I_9, K_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{14}, B_1, I_9, J_8, K_{11}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 1^J 1^K \rangle \langle A_{14} | \hat{0}_\beta^+ | A_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_8 | \hat{1}_\beta^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_{14}, J_8} t_{I_9, K_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{14}, B_1, I_{10}, J_7, K_{11}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I | \hat{g} | 0^J 1^K \rangle \langle A_{14} | \hat{0}_\beta^+ | A_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_{14}, J_7} t_{I_{10}, K_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{14}, B_1, I_{10}, J_8, K_{11}) \rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^J1^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{14},J_8}t_{I_{10},K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_9,J_7,K_{11})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_9,K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_9,J_8,K_{11})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_9,K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_{10},J_7,K_{11})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|0^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{13},J_7}t_{I_{10},K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_1,I_{10},J_8,K_{11})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^J1^K\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1}t_{A_{13},J_8}t_{I_{10},K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_7,J_9,K_{12})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|0^I0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_9,K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_8,J_9,K_{12})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{14},I_8}t_{J_9,K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_1,I_7,J_{10},K_{12})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A1^J|\hat{g}|0^I0^K\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_{10},K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{14}, B_1, I_8, J_{10}, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^J | \hat{g} | 1^I 0^K \rangle \langle A_{14} | \hat{0}_\beta^+ | A_1 \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_{14}, I_8} t_{J_{10}, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{13}, B_1, I_7, J_9, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^J | \hat{g} | 0^I 0^K \rangle \langle A_{13} | \hat{1}_\beta^+ | A_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_{13}, I_7} t_{J_9, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{13}, B_1, I_8, J_9, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^J | \hat{g} | 1^I 0^K \rangle \langle A_{13} | \hat{1}_\beta^+ | A_1 \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_{13}, I_8} t_{J_9, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{13}, B_1, I_7, J_{10}, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^J | \hat{g} | 0^I 0^K \rangle \langle A_{13} | \hat{1}_\beta^+ | A_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_{13}, I_7} t_{J_{10}, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{13}, B_1, I_8, J_{10}, K_{12}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^J | \hat{g} | 1^I 0^K \rangle \langle A_{13} | \hat{1}_\beta^+ | A_1 \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_{13}, I_8} t_{J_{10}, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{14}, B_1, I_7, J_9, K_{11}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^J | \hat{g} | 0^I 1^K \rangle \langle A_{14} | \hat{0}_\beta^+ | A_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_{14}, I_7} t_{J_9, K_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{14}, B_1, I_8, J_9, K_{11}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^J | \hat{g} | 1^I 1^K \rangle \langle A_{14} | \hat{0}_\beta^+ | A_1 \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_{14}, I_8} t_{J_9, K_{11}}$$

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$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{14},I_7}t_{J_{10},K_{11}}$$

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$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_{14},J_7}$$

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$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_{14}, J_7, K_{12})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},K_{12}}t_{I_{14},J_7}$$

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$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},K_{12}}t_{I_{13},J_7}$$

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$$\langle (A_1, B_1) | \hat{H} | (A_9, B_1, I_{14}, J_8, K_{11}) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I | \hat{g} | 1^K 1^J \rangle \langle A_9 | \hat{0}_\alpha^- | A_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_8 | \hat{1}_\beta^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{B_1} t_{A_9, K_{11}} t_{I_{14}, J_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{10}, B_1, I_{14}, J_7, K_{11}) \rangle =$$
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$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,K_{12}} t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_8, J_{14}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,K_{12}} t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_7, J_{14}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|0^K 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},K_{12}} t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_8, J_{14}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^K 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10},K_{12}} t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_7, J_{13}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|0^K 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_9,K_{12}} t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_8, J_{13}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|0^K1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_8,J_{13}}$$

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$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},K_{12}}t_{I_7,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_8,J_{13},K_{12})\rangle =$$
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$$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_7,J_{14},K_{11})\rangle =$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^K0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,K_{11}}t_{I_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_8,J_{14},K_{11})\rangle =$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A1^I|\hat{g}|1^K0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,K_{11}}t_{I_8,J_{14}}$$

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$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A0^I|\hat{g}|1^K0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},K_{11}}t_{I_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_1,I_8,J_{14},K_{11})\rangle =$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A1^I|\hat{g}|1^K0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_{10},K_{11}}t_{I_8,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_1,I_7,J_{13},K_{11})\rangle =$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A0^I|\hat{g}|1^K1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1}t_{A_9,K_{11}}t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_1, I_8, J_{13}, K_{11})\rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I|\hat{g}|1^K 1^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_9, K_{11}} t_{I_8, J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_7, J_{13}, K_{11})\rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I|\hat{g}|1^K 1^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle I_7|\hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10}, K_{11}} t_{I_7, J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_1, I_8, J_{13}, K_{11})\rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I|\hat{g}|1^K 1^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_{10}, K_{11}} t_{I_8, J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_9, J_{14}, K_{12})\rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I|\hat{g}|0^J 0^K\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle I_9|\hat{0}_\alpha^-|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_7, J_{14}} t_{I_9, K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_9, J_{14}, K_{12})\rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I|\hat{g}|0^J 0^K\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_9|\hat{0}_\alpha^-|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_8, J_{14}} t_{I_9, K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{10}, J_{14}, K_{12})\rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 1^I|\hat{g}|0^J 0^K\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_7, J_{14}} t_{I_{10}, K_{12}}$$

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$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I|\hat{g}|0^J 0^K\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_8, J_{14}} t_{I_{10}, K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_9, J_{13}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|1^J 0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_7,J_{13}} t_{I_9,K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_9, J_{13}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|1^J 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_9,K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{10}, J_{13}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_7,J_{13}} t_{I_{10},K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{10}, J_{13}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_{10},K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_9, J_{14}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_7,J_{14}} t_{I_9,K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_9, J_{14}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^A 0^I|\hat{g}|0^J 1^K\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_8,J_{14}} t_{I_9,K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{10}, J_{14}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^A 1^I|\hat{g}|0^J 1^K\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{B_1} t_{A_7,J_{14}} t_{I_{10},K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{10}, J_{14}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|0^J 1^K\rangle \langle A_8|\hat{1}^-_\beta|A_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_8,J_{14}} t_{I_{10},K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_9, J_{13}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 0^I|\hat{g}|1^J 1^K\rangle \langle A_7|\hat{0}^-_\beta|A_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_7,J_{13}} t_{I_9,K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_9, J_{13}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 0^I|\hat{g}|1^J 1^K\rangle \langle A_8|\hat{1}^-_\beta|A_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_9,K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_1, I_{10}, J_{13}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^A 1^I|\hat{g}|1^J 1^K\rangle \langle A_7|\hat{0}^-_\beta|A_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_7,J_{13}} t_{I_{10},K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_1, I_{10}, J_{13}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^A 1^I|\hat{g}|1^J 1^K\rangle \langle A_8|\hat{1}^-_\beta|A_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{B_1} t_{A_8,J_{13}} t_{I_{10},K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{12}, J_9, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|0^J 0^K\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},J_9} t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|0^K 0^J\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},J_9} t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|0^J 0^K\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},K_9} t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|0^K 0^J\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},K_9} t_{I_{12},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_{14}, J_7, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|0^J 0^K\rangle \langle B_{14}|\hat{0}^+_\beta|B_1\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1} t_{B_{14},J_7} t_{I_{14},K_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 0^K 0^J \rangle \langle B_{14} | \hat{0}^+_\beta | B_1 \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{A_1} t_{B_{14},J_7} t_{I_{14},K_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 0^J 0^K \rangle \langle B_{14} | \hat{0}^+_\beta | B_1 \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{A_1} t_{B_{14},K_7} t_{I_{14},J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 0^K 0^J \rangle \langle B_{14} | \hat{0}^+_\beta | B_1 \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{A_1} t_{B_{14},K_7} t_{I_{14},J_7}$$

$\langle (A_1, B_1) | \hat{H} | (A_1, B_{12}, I_{14}, J_9, K_7) \rangle =$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 0^J 0^K \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{A_1} t_{B_{12},J_9} t_{I_{14},K_7}$$

$\langle (A_1, B_1) | \hat{H} | (A_1, B_{12}, I_{12}, J_9, K_{10}) \rangle =$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 0^J 1^K \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_{12} | \hat{0}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle t_{A_1} t_{B_{12},J_9} t_{I_{12},K_{10}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 1^K 0^J \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_{12} | \hat{0}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle t_{A_1} t_{B_{12},J_9} t_{I_{12},K_{10}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 0^J 1^K \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_{12} | \hat{0}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle t_{A_1} t_{B_{12},K_{10}} t_{I_{12},J_9}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 1^K 0^J \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_{12} | \hat{0}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{10} | \hat{1}^-_\alpha | K_0 \rangle t_{A_1} t_{B_{12},K_{10}} t_{I_{12},J_9}$$

$\langle (A_1, B_1) | \hat{H} | (A_1, B_{14}, I_{14}, J_7, K_8) \rangle =$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 0^J 1^K \rangle \langle B_{14} | \hat{0}^+_\beta | B_1 \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{A_1} t_{B_{14},J_7} t_{I_{14},K_8}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 1^K 0^J \rangle \langle B_{14} | \hat{0}^+_\beta | B_1 \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{A_1} t_{B_{14},J_7} t_{I_{14},K_8}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 0^J 1^K \rangle \langle B_{14} | \hat{0}^+_\beta | B_1 \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{A_1} t_{B_{14},K_8} t_{I_{14},J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 1^K 0^J \rangle \langle B_{14} | \hat{0}^+_\beta | B_1 \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{A_1} t_{B_{14},K_8} t_{I_{14},J_7}$$

$\langle (A_1, B_1) | \hat{H} | (A_1, B_{12}, I_{14}, J_9, K_8) \rangle =$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 0^J 1^K \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{A_1} t_{B_{12},J_9} t_{I_{14},K_8}$$

$\langle (A_1, B_1) | \hat{H} | (A_1, B_{12}, I_{12}, J_{10}, K_9) \rangle =$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 1^J 0^K \rangle \langle B_{12} | \hat{0}^+_\alpha | B_1 \rangle \langle I_{12} | \hat{0}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_9 | \hat{0}^-_\alpha | K_0 \rangle t_{A_1} t_{B_{12},J_{10}} t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^K 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|1^J 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_{12},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^K 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_{12},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{14},I_{14},J_8,K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|1^J 0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^K 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|1^J 0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_7}t_{I_{14},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^K 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_7}t_{I_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_{14},J_{10},K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|1^J 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_{14},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_{12},J_{10},K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|1^K 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_{10}}t_{I_{12},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|1^K 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_{10}}t_{I_{12},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{14},I_{14},J_8,K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|1^K 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_8}t_{I_{14},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|1^K 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_8}t_{I_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{14}, J_{10}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1} t_{B_{12},J_{10}} t_{I_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{11}, J_9, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},J_9} t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},J_9} t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},K_9} t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},K_9} t_{I_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_{13}, J_7, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1} t_{B_{14},J_7} t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1} t_{B_{14},J_7} t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1} t_{B_{14},K_7} t_{I_{13},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1} t_{B_{14},K_7} t_{I_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{13}, J_9, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1} t_{B_{12},J_9} t_{I_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{11}, J_9, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},J_9} t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},J_9} t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},K_{10}} t_{I_{11},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},K_{10}} t_{I_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_{13}, J_7, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_8}t_{I_{13},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_8}t_{I_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{13}, J_9, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{11}, J_{10}, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^K 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^K 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_{13}, J_8, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^K 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_7}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^K 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_7}t_{I_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{13}, J_{10}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{11}, J_{10}, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_{10}}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_{10}}t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_{13}, J_8, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_8}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_8}t_{I_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{13}, J_{10}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{12}, J_9, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^K 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^K 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_{12},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_{14}, J_7, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^K 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_7}t_{I_{14},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_7}t_{I_{14},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{11},I_{14},J_9,K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_{14},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{11},I_{12},J_9,K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{12},J_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{12},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{13},I_{14},J_7,K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_8}t_{I_{14},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_8}t_{I_{14},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{11},I_{14},J_9,K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_{14},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{11},I_{12},J_{10},K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_{12},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_{14},J_8,K_7)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_{14},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_{14},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_7}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_7}t_{I_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_{14},J_{10},K_7)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_{14},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_{12},J_{10},K_{10})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{12},J_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{12},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_{14},J_8,K_8)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_8}t_{I_{14},J_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_8}t_{I_{14},J_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{11}, I_{14}, J_{10}, K_8) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I | \hat{g} | 1^J 1^K \rangle \langle B_{11} | \hat{1}_\alpha^+ | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_8 | \hat{1}_\beta^- | K_0 \rangle t_{A_1} t_{B_{11}, J_{10}} t_{I_{14}, K_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{11}, I_{11}, J_9, K_9) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^J 0^K \rangle \langle B_{11} | \hat{1}_\alpha^+ | B_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_{11}, J_9} t_{I_{11}, K_9}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^K 0^J \rangle \langle B_{11} | \hat{1}_\alpha^+ | B_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_{11}, J_9} t_{I_{11}, K_9}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^J 0^K \rangle \langle B_{11} | \hat{1}_\alpha^+ | B_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_{11}, K_9} t_{I_{11}, J_9}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^K 0^J \rangle \langle B_{11} | \hat{1}_\alpha^+ | B_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_9 | \hat{0}_\alpha^- | K_0 \rangle t_{A_1} t_{B_{11}, K_9} t_{I_{11}, J_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{13}, I_{13}, J_7, K_7) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^J 0^K \rangle \langle B_{13} | \hat{1}_\beta^+ | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_{13}, J_7} t_{I_{13}, K_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^K 0^J \rangle \langle B_{13} | \hat{1}_\beta^+ | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_{13}, J_7} t_{I_{13}, K_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^J 0^K \rangle \langle B_{13} | \hat{1}_\beta^+ | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_{13}, K_7} t_{I_{13}, J_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^K 0^J \rangle \langle B_{13} | \hat{1}_\beta^+ | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_{13}, K_7} t_{I_{13}, J_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{11}, I_{13}, J_9, K_7) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^J 0^K \rangle \langle B_{11} | \hat{1}_\alpha^+ | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_{11}, J_9} t_{I_{13}, K_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{11}, I_{11}, J_9, K_{10}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^J 1^K \rangle \langle B_{11} | \hat{1}_\alpha^+ | B_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{A_1} t_{B_{11}, J_9} t_{I_{11}, K_{10}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 1^K 0^J \rangle \langle B_{11} | \hat{1}_\alpha^+ | B_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{A_1} t_{B_{11}, J_9} t_{I_{11}, K_{10}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^J 1^K \rangle \langle B_{11} | \hat{1}_\alpha^+ | B_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{A_1} t_{B_{11}, K_{10}} t_{I_{11}, J_9}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 1^K 0^J \rangle \langle B_{11} | \hat{1}_\alpha^+ | B_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{A_1} t_{B_{11}, K_{10}} t_{I_{11}, J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_{13}, J_7, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},K_8}t_{I_{13},J_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},K_8}t_{I_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{13}, J_9, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{11}, J_{10}, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^K 1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^K 1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_{13}, J_8, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^K 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},K_7}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^K 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},K_7}t_{I_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{13}, J_{10}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{11}, J_{10}, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_{13}, J_8, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},K_8}t_{I_{13},J_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},K_8}t_{I_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{13}, J_{10}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{14}, J_7, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^K 0^J\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{14}, J_8, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^K 1^J\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{14}, J_7, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|1^K 0^J\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{12},K_{10}}t_{I_{14},J_7}$$

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$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{14}, J_8, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^K 1^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{12},K_{10}}t_{I_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{13}, J_7, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^K 0^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{13}, J_8, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^K 1^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{13}, J_7, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|1^K 0^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{12},K_{10}}t_{I_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{13}, J_8, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|1^K 1^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{12},K_{10}}t_{I_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{14}, J_7, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^K 0^J\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{14}, J_8, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^K 1^J\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_{14},J_7,K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{14},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_{14},J_8,K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_{13},J_7,K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^K0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_{13},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_{13},J_8,K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^K1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_{13},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_{13},J_7,K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{13},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_{13},J_8,K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{13},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_9,J_{12},K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_9,J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_7, J_{14}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|0^K 0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_7}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|0^K 0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_7}t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_9, J_{14}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_9, J_{12}, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^K 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_{10}}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^K 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_{10}}t_{I_9,J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_7, J_{14}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^K 0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_8}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^K 0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_8}t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_9, J_{14}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{10}, J_{12}, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_{10},J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_8, J_{14}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_7}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_7}t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{10}, J_{14}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{10}, J_{12}, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_{10}}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_{10}}t_{I_{10},J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_8, J_{14}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_{14},K_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^K0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_{14},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|1^I1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_8}t_{I_8,J_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^K0^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_8}t_{I_8,J_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_{10},J_{14},K_8)\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|1^I1^K\rangle\langle B_{12}|\hat{0}^+_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_{14},K_8}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_9,J_{11},K_9)\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_{11},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_9,J_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_9,J_{11}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{14},I_7,J_{13},K_7)\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_{13},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_7}t_{I_7,J_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_7}t_{I_7,J_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_9,J_{13},K_7)\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_{13},K_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_9,J_{11},K_{10})\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^K1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_{10}}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^K1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_{10}}t_{I_9,J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{14},I_7,J_{13},K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^K1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_8}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^K1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_8}t_{I_7,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{12},I_9,J_{13},K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_{13},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{12},I_{10},J_{11},K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^K1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^K1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{12},K_9}t_{I_{10},J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{14},I_8,J_{13},K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^K1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_7}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^K1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{14},K_7}t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{10}, J_{13}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|1^I 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{10}, J_{11}, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},K_{10}} t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},K_{10}} t_{I_{10},J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_8, J_{13}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1} t_{B_{14},I_8} t_{J_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1} t_{B_{14},I_8} t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1} t_{B_{14},K_8} t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1} t_{B_{14},K_8} t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{10}, J_{13}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_9, J_{12}, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{11},I_9} t_{J_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^K 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{11},I_9} t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{11},K_9} t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^K 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{11},K_9} t_{I_9,J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_7, J_{14}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_7}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_7}t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_9, J_{14}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_9, J_{12}, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_9,J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_7, J_{14}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_8}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_8}t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_9, J_{14}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{10}, J_{12}, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_{12},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_{10},J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_8, J_{14}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_7}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_7}t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{10}, J_{14}, K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{10}, J_{12}, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{10},J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_8, J_{14}, K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|1^I1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_8}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K0^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_8}t_{I_8,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{11},I_{10},J_{14},K_8)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|1^I1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_{14},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{11},I_9,J_{11},K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_9,J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{13},I_7,J_{13},K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_7}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{13},K_7}t_{I_7,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{11},I_9,J_{13},K_7)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_{13},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{11},I_9,J_{11},K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I1^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_9,J_{11}}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_9,J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{13},I_7,J_{13},K_8)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I1^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_{13},K_8}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_{13},K_8}$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I1^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},K_8}t_{I_7,J_{13}}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},K_8}t_{I_7,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{11},I_9,J_{13},K_8)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I1^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_{13},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{11},I_{10},J_{11},K_9)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I0^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_{11},K_9}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^K1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_{11},K_9}$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I0^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_{10},J_{11}}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^K1^J\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{11},K_9}t_{I_{10},J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{13},I_8,J_{13},K_7)\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I0^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_{13},K_7}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^K1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_{13},K_7}$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I0^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},K_7}t_{I_8,J_{13}}$$
$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^K1^J\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_{13},K_7}t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{10}, J_{13}, K_7)\rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^J|\hat{g}|1^I 0^K\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1} t_{B_{11},I_{10}} t_{J_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{10}, J_{11}, K_{10})\rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^J|\hat{g}|1^I 1^K\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1} t_{B_{11},I_{10}} t_{J_{11},K_{10}}$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I|\hat{g}|1^K 1^J\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1} t_{B_{11},I_{10}} t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^J|\hat{g}|1^I 1^K\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1} t_{B_{11},K_{10}} t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I|\hat{g}|1^K 1^J\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1} t_{B_{11},K_{10}} t_{I_{10},J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_8, J_{13}, K_8)\rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^J|\hat{g}|1^I 1^K\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1} t_{B_{13},I_8} t_{J_{13},K_8}$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I|\hat{g}|1^K 1^J\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1} t_{B_{13},I_8} t_{J_{13},K_8}$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^J|\hat{g}|1^I 1^K\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1} t_{B_{13},K_8} t_{I_8,J_{13}}$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I|\hat{g}|1^K 1^J\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1} t_{B_{13},K_8} t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{10}, J_{13}, K_8)\rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^J|\hat{g}|1^I 1^K\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1} t_{B_{11},I_{10}} t_{J_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_7, J_{14}, K_9)\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|0^K 0^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_7|\hat{0}_\beta^-|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1} t_{B_{12},K_9} t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_8, J_{14}, K_9)\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I|\hat{g}|0^K 0^J\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1} t_{B_{12},K_9} t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_7, J_{14}, K_{10})\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|1^K 0^J\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},K_{10}} t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_8, J_{14}, K_{10})\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I|\hat{g}|1^K 0^J\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},K_{10}} t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_7, J_{13}, K_9)\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|0^K 1^J\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle \langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},K_9} t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_8, J_{13}, K_9)\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I|\hat{g}|0^K 1^J\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle \langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},K_9} t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_7, J_{13}, K_{10})\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|1^K 1^J\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle \langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},K_{10}} t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_8, J_{13}, K_{10})\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I|\hat{g}|1^K 1^J\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle \langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{12},K_{10}} t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_7, J_{14}, K_9)\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I|\hat{g}|0^K 0^J\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle \langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{11},K_9} t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_8, J_{14}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{11},K_9} t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_7, J_{14}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|1^K 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{11},K_{10}} t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_8, J_{14}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{11},K_{10}} t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_7, J_{13}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^K 1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{11},K_9} t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_8, J_{13}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|0^K 1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{11},K_9} t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_7, J_{13}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|1^K 1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{11},K_{10}} t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_8, J_{13}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{11},K_{10}} t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_9, J_9, K_{12})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^J0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^J0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_{12},J_9}t_{I_9,K_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{14},I_7,J_7,K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^J0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^J0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_7,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{12},I_9,J_7,K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_7,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{12},I_9,J_{10},K_{12})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^J0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_9}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^J0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_9,K_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{14},I_7,J_8,K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^J0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},I_7}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^J0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_9, J_8, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^J|\hat{g}|0^I 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{12},I_9} t_{J_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{10}, J_9, K_{12})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{12},J_9} t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{12},J_9} t_{I_{10},K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_8, J_7, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{14},I_8} t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{14},I_8} t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{14},J_7} t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{14},J_7} t_{I_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{10}, J_7, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{10}, J_{10}, K_{12})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^J|\hat{g}|1^I 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^J|\hat{g}|1^I 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{12},J_{10}} t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{12},J_{10}} t_{I_{10},K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_8, J_8, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^B 1^J|\hat{g}|1^I 0^K\rangle \langle B_{14}|\hat{0}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_8|\hat{1}^-_\beta|J_0\rangle \langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{14},I_8} t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^B 1^I|\hat{g}|1^J 0^K\rangle \langle B_{14}|\hat{0}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_8|\hat{1}^-_\beta|J_0\rangle \langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{14},I_8} t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^B 1^J|\hat{g}|1^I 0^K\rangle \langle B_{14}|\hat{0}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_8|\hat{1}^-_\beta|J_0\rangle \langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{14},J_8} t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^B 1^I|\hat{g}|1^J 0^K\rangle \langle B_{14}|\hat{0}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_8|\hat{1}^-_\beta|J_0\rangle \langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{14},J_8} t_{I_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_{10}, J_8, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^B 1^J|\hat{g}|1^I 0^K\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle \langle J_8|\hat{1}^-_\beta|J_0\rangle \langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{12},I_{10}} t_{J_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_9, J_9, K_{11})\rangle =$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1} t_{B_{12},I_9} t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|0^J 1^K\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1} t_{B_{12},I_9} t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1} t_{B_{12},J_9} t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|0^J 1^K\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1} t_{B_{12},J_9} t_{I_9,K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_7, J_7, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_{14}|\hat{0}^+_\beta|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1} t_{B_{14},I_7} t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|0^J 1^K\rangle \langle B_{14}|\hat{0}^+_\beta|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1} t_{B_{14},I_7} t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_{14}|\hat{0}^+_\beta|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1} t_{B_{14},J_7} t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|0^J 1^K\rangle \langle B_{14}|\hat{0}^+_\beta|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1} t_{B_{14},J_7} t_{I_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{12}, I_9, J_7, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_{12}|\hat{0}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1} t_{B_{12},I_9} t_{J_7,K_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{12}, I_9, J_{10}, K_{11}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^J | \hat{g} | 0^I 1^K \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_{12}, I_9} t_{J_{10}, K_{11}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 1^J 1^K \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_{12}, I_9} t_{J_{10}, K_{11}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^J | \hat{g} | 0^I 1^K \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_{12}, J_{10}} t_{I_9, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 1^J 1^K \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_{12}, J_{10}} t_{I_9, K_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{14}, I_7, J_8, K_{13}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^J | \hat{g} | 0^I 1^K \rangle \langle B_{14} | \hat{0}_\beta^+ | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_8 | \hat{1}_\beta^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{A_1} t_{B_{14}, I_7} t_{J_8, K_{13}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 1^J 1^K \rangle \langle B_{14} | \hat{0}_\beta^+ | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_8 | \hat{1}_\beta^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{A_1} t_{B_{14}, I_7} t_{J_8, K_{13}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^J | \hat{g} | 0^I 1^K \rangle \langle B_{14} | \hat{0}_\beta^+ | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_8 | \hat{1}_\beta^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{A_1} t_{B_{14}, J_8} t_{I_7, K_{13}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 1^J 1^K \rangle \langle B_{14} | \hat{0}_\beta^+ | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_8 | \hat{1}_\beta^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{A_1} t_{B_{14}, J_8} t_{I_7, K_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{12}, I_9, J_8, K_{13}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^J | \hat{g} | 0^I 1^K \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_8 | \hat{1}_\beta^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{A_1} t_{B_{12}, I_9} t_{J_8, K_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{12}, I_{10}, J_9, K_{11}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^J | \hat{g} | 1^I 1^K \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_{12}, I_{10}} t_{J_9, K_{11}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I | \hat{g} | 0^J 1^K \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_{12}, I_{10}} t_{J_9, K_{11}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^J | \hat{g} | 1^I 1^K \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_{12}, J_9} t_{I_{10}, K_{11}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I | \hat{g} | 0^J 1^K \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_{12}, J_9} t_{I_{10}, K_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{14}, I_8, J_7, K_{13}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^J | \hat{g} | 1^I 1^K \rangle \langle B_{14} | \hat{0}_\beta^+ | B_1 \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle \langle K_{13} | \hat{1}_\beta^+ | K_0 \rangle t_{A_1} t_{B_{14}, I_8} t_{J_7, K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^J1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|1^I1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^J1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},J_7}t_{I_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_{10},J_7,K_{13})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|1^I1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_{10},J_{10},K_{11})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{12},J_{10}}t_{I_{10},K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{14},I_8,J_8,K_{13})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},I_8}t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J1^K\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{14},J_8}t_{I_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_{10},J_8,K_{13})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I1^K\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{12},I_{10}}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_9,J_9,K_{12})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J0^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_9,K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J0^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_9,K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_7,J_7,K_{14})\rangle=$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J0^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_7,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J0^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_9,J_7,K_{14})\rangle=$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_9,J_{10},K_{12})\rangle=$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_{10},K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_{10},K_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_9,K_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_7,J_8,K_{14})\rangle=$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_8,K_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_9, J_8, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|0^I 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{11},I_9} t_{J_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{10}, J_9, K_{12})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{11},I_{10}} t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{11},I_{10}} t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{11},J_9} t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{11},J_9} t_{I_{10},K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_8, J_7, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{13},I_8} t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{13},I_8} t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{13},J_7} t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{13},J_7} t_{I_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{10}, J_7, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{11},I_{10}} t_{J_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{10}, J_{10}, K_{12})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|1^I 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{11},I_{10}} t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{11},I_{10}} t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|1^I 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{11},J_{10}} t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1} t_{B_{11},J_{10}} t_{I_{10},K_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_8, J_8, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|1^I 0^K\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_8|\hat{1}^-_\beta|J_0\rangle \langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{13},I_8} t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^J 0^K\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_8|\hat{1}^-_\beta|J_0\rangle \langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{13},I_8} t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|1^I 0^K\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_8|\hat{1}^-_\beta|J_0\rangle \langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{13},J_8} t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^J 0^K\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_8|\hat{1}^-_\beta|J_0\rangle \langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{13},J_8} t_{I_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{10}, J_8, K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|1^I 0^K\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_{10}|\hat{1}^-_\alpha|I_0\rangle \langle J_8|\hat{1}^-_\beta|J_0\rangle \langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{11},I_{10}} t_{J_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_9, J_9, K_{11})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1} t_{B_{11},I_9} t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^J 1^K\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1} t_{B_{11},I_9} t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1} t_{B_{11},J_9} t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^J 1^K\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1} t_{B_{11},J_9} t_{I_9,K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_7, J_7, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1} t_{B_{13},I_7} t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^J 1^K\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1} t_{B_{13},I_7} t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1} t_{B_{13},J_7} t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^J 1^K\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1} t_{B_{13},J_7} t_{I_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_9, J_7, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_9|\hat{0}^-_\alpha|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle \langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1} t_{B_{11},I_9} t_{J_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_9, J_{10}, K_{11})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_9,K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_7, J_8, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{13},I_7}t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_9, J_8, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_8,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{11}, I_{10}, J_9, K_{11})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_{10},K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_8, J_7, K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{13},I_8}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_{13},J_7} t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_{13},J_7} t_{I_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_{10},J_7,K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_{11},I_{10}} t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_{10},J_{10},K_{11})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_{11},I_{10}} t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_{11},I_{10}} t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_{11},J_{10}} t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_{11},J_{10}} t_{I_{10},K_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_8,J_8,K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_{13},I_8} t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_{13},I_8} t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_{13},J_8} t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_{13},J_8} t_{I_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{11},I_{10},J_8,K_{13})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_{11},I_{10}} t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{12},I_7,J_9,K_{14})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1} t_{B_{12},J_9} t_{I_7,K_{14}}$$

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$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I|\hat{g}|0^J 0^K\rangle \langle B_{11}|\hat{1}^+_\alpha|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle \langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1} t_{B_{11},J_9} t_{I_7,K_{14}}$$

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$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|1^J 0^K\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle \langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1} t_{B_{14},J_8} t_{I_{11},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_{11}, J_7, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^J 1^K\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_7|\hat{0}_\beta^-|J_0\rangle \langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1} t_{B_{14},J_7} t_{I_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_{11}, J_8, K_{10})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|1^J 1^K\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle \langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1} t_{B_{14},J_8} t_{I_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{13}, I_{11}, J_7, K_9)\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_{11},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_{11},J_8,K_9)\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_{11},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_{11},J_7,K_{10})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{13},J_7}t_{I_{11},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{13},I_{11},J_8,K_{10})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{13},J_8}t_{I_{11},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_{12},J_{12},K_9)\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{12},K_9}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{12},K_9}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_{12},K_9}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_{12},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_{14},J_{14},K_7)\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_{14},K_7}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_{14},K_7}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_{14},K_7}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_{12}, J_{14}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_{12}, J_{12}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{12},K_{10}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^J1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{12},K_{10}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_{12},K_{10}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^J1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_{14}, J_{14}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_{14},K_8}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^J1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_{14},K_8}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_{14},K_8}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^J1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_{12}, J_{14}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{12}, J_{12}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_{12},K_9}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_{12},K_9}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_{12},K_9}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{14}, J_{14}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_{14},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{12}, J_{14}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_7|\hat{0}^-_\beta|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{12}, J_{12}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^J 1^K\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^J 1^K\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{14}, J_{14}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^J 1^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^J 1^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{12}, J_{14}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_8|\hat{1}^-_\beta|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_{14},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_{12}, J_{11}, K_9)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|0^I 0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^J 0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{11},K_9}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|0^I 0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_{12},K_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^J 0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_{12},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_{14}, J_{13}, K_7)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|0^I 0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^J 0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_{13},K_7}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|0^I 0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_{14},K_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^J 0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_{14},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_{12}, J_{13}, K_7)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|0^I 0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_{12}, J_{11}, K_{10})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{11},K_{10}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_{12},K_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_{14}, J_{13}, K_8)\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_{13},K_8}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^J1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_{14},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_{12},J_{13},K_8)\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{13},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{12},J_{11},K_9)\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_{11},K_9}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_{11},K_9}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_{12},K_9}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_{12},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_{14},J_{13},K_7)\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_{13},K_7}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_{13},K_7}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_{14},K_7}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_{14},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{12},J_{13},K_7)\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_{13},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{12},J_{11},K_{10})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_{11},K_{10}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_{11},K_{10}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_{12},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_{12},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_8,I_{14},J_{13},K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_{14},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_{14},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{10},I_{12},J_{13},K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_{13},K_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_9,I_{11},J_{12},K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|1^I0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^J0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|1^I0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^J0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_{11},K_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_7,I_{13},J_{14},K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|1^I0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^J0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_{14},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|1^I0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^J0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_{13},K_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_9,I_{11},J_{14},K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^B0^J|\hat{g}|1^I0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_{14},K_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_{11},J_{12},K_{10})\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^B0^J|\hat{g}|1^I1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^B1^I|\hat{g}|0^J1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_{12},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^B0^J|\hat{g}|1^I1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^B1^I|\hat{g}|0^J1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_{11},K_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_{13},J_{14},K_8)\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^B0^J|\hat{g}|1^I1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^B1^I|\hat{g}|0^J1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_{14},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle0^B0^J|\hat{g}|1^I1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^B1^I|\hat{g}|0^J1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_{13},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_{11},J_{14},K_8)\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle0^B0^J|\hat{g}|1^I1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_{14},K_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{11},J_{12},K_9)\rangle=$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle1^B0^J|\hat{g}|1^I0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle1^B1^I|\hat{g}|0^J0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_{12},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle1^B0^J|\hat{g}|1^I0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle1^B1^I|\hat{g}|0^J0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_{11},K_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_{13},J_{14},K_7)\rangle=$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^J | \hat{g} | 1^I 0^K \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_8,I_{13}} t_{J_{14},K_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^J 0^K \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_8,I_{13}} t_{J_{14},K_7}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^J | \hat{g} | 1^I 0^K \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_8,J_{14}} t_{I_{13},K_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^J 0^K \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_8,J_{14}} t_{I_{13},K_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{10}, I_{11}, J_{14}, K_7) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^J | \hat{g} | 1^I 0^K \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_7 | \hat{0}_\beta^- | K_0 \rangle t_{A_1} t_{B_{10},I_{11}} t_{J_{14},K_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{10}, I_{11}, J_{12}, K_{10}) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^J | \hat{g} | 1^I 1^K \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{A_1} t_{B_{10},I_{11}} t_{J_{12},K_{10}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^J 1^K \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{A_1} t_{B_{10},I_{11}} t_{J_{12},K_{10}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^J | \hat{g} | 1^I 1^K \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{A_1} t_{B_{10},J_{12}} t_{I_{11},K_{10}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^J 1^K \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle t_{A_1} t_{B_{10},J_{12}} t_{I_{11},K_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_8, I_{13}, J_{14}, K_8) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^J | \hat{g} | 1^I 1^K \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_8 | \hat{1}_\beta^- | K_0 \rangle t_{A_1} t_{B_8,I_{13}} t_{J_{14},K_8}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^J 1^K \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_8 | \hat{1}_\beta^- | K_0 \rangle t_{A_1} t_{B_8,I_{13}} t_{J_{14},K_8}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^J | \hat{g} | 1^I 1^K \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_8 | \hat{1}_\beta^- | K_0 \rangle t_{A_1} t_{B_8,J_{14}} t_{I_{13},K_8}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^J 1^K \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_8 | \hat{1}_\beta^- | K_0 \rangle t_{A_1} t_{B_8,J_{14}} t_{I_{13},K_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{10}, I_{11}, J_{14}, K_8) \rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^J | \hat{g} | 1^I 1^K \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle \langle J_{14} | \hat{0}_\beta^+ | J_0 \rangle \langle K_8 | \hat{1}_\beta^- | K_0 \rangle t_{A_1} t_{B_{10},I_{11}} t_{J_{14},K_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_9, I_{11}, J_{11}, K_9) \rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_{11},K_9}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_7,I_{13},J_{13},K_7)\rangle =$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_{13},K_7}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_9,I_{11},J_{13},K_7)\rangle =$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_{13},K_7}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_9,I_{11},J_{11},K_{10})\rangle =$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_{11},K_{10}}$$

$\langle (A_1,B_1)|\hat{H}|(A_1,B_7,I_{13},J_{13},K_8)\rangle =$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_{11}, J_{13}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_{13},K_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{11}, J_{11}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^J0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_{11},K_9}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_{11},K_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^J0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_{11},K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{13}, J_{13}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^J0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_{13},K_7}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_{13},K_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^J0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{11}, J_{13}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_{13},K_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{11}, J_{11}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^J1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_{11},K_{10}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_{11},K_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^J1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_{11},K_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_8, I_{13}, J_{13}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_{13},K_8}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_{13},K_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_{13},K_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{11}, J_{13}, K_8)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_8|\hat{1}_\beta^-|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_{13},K_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_7, I_{12}, J_{14}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_{12},K_9}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_8, I_{12}, J_{14}, K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_{12},K_9}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_7, I_{12}, J_{14}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^J 1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_{12},K_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_8, I_{12}, J_{14}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^J 1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_{12},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_{12}, J_{13}, K_9)\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|1^J 0^K\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_7, J_{13}} t_{I_{12}, K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{12}, J_{13}, K_9)\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I|\hat{g}|1^J 0^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_8, J_{13}} t_{I_{12}, K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_{12}, J_{13}, K_{10})\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_7, J_{13}} t_{I_{12}, K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{12}, J_{13}, K_{10})\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_8, J_{13}} t_{I_{12}, K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_{11}, J_{14}, K_9)\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_7, J_{14}} t_{I_{11}, K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{11}, J_{14}, K_9)\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_8, J_{14}} t_{I_{11}, K_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_{11}, J_{14}, K_{10})\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_7, J_{14}} t_{I_{11}, K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{11}, J_{14}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_{11},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_7,I_{11},J_{13},K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_{11},K_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_8,I_{11},J_{13},K_9)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_{11},K_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_7,I_{11},J_{13},K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_{11},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_8,I_{11},J_{13},K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{10}|\hat{1}_\alpha^-|K_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_{11},K_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_9,I_{12},J_9,K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_9,K_{12}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^K 0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_9,K_{12}}$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{12}}t_{I_{12},J_9}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^K 0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{12}}t_{I_{12},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_7,I_{14},J_7,K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|0^I 0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_7,K_{14}}$$
$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^K 0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_7|\hat{0}_{\beta}^-|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_{14},J_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K0^J\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_7|\hat{0}_{\beta}^-|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_{14},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_9,I_{12},J_7,K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_7|\hat{0}_{\beta}^-|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_7,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_9,I_{12},J_{10},K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K1^J\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_9,K_{12}}t_{I_{12},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K1^J\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_9,K_{12}}t_{I_{12},J_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_7,I_{14},J_8,K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K1^J\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_{14},J_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K1^J\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_{14},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_9,I_{12},J_8,K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_8,K_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{10},I_{12},J_9,K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_{10}|\hat{1}_{\alpha}^-|B_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K0^J\rangle\langle B_{10}|\hat{1}_{\alpha}^-|B_1\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{12}}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{12}}t_{I_{12},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_{14},J_7,K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K0^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_8,K_{14}}t_{I_{14},J_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K0^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_8,K_{14}}t_{I_{14},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{12},J_7,K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|0^I0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{12},J_{10},K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{12}}t_{I_{12},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{12}}t_{I_{12},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_{14},J_8,K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|0^I0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_8,K_{14}}t_{I_{14},J_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_8,K_{14}}t_{I_{14},J_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{12}, J_8, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|0^I 0^K\rangle \langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_8,K_{14}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_9, I_{12}, J_9, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^K 0^J\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_9,K_{11}}t_{I_{12},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^K 0^J\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_9,K_{11}}t_{I_{12},J_9}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_7, I_{14}, J_7, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^K 0^J\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_{14},J_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^K 0^J\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_{14},J_7}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_9, I_{12}, J_7, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|0^I 1^K\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_7,K_{13}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_9, I_{12}, J_{10}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|0^I 1^K\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^K 1^J\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|0^I 1^K\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_9,K_{11}}t_{I_{12},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^K 1^J\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_9,K_{11}}t_{I_{12},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_{14}, J_8, K_{13})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^K 1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_7,I_{14}}t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_{14},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^K 1^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_{12}, J_8, K_{13})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_9,I_{12}}t_{J_8,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{12}, J_9, K_{11})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|1^K 0^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_9,K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_{12},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|1^K 0^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{11}|\hat{1}^+_\alpha|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_{12},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{14}, J_7, K_{13})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|1^K 0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_8,I_{14}}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_{14},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|1^K 0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{12}, J_7, K_{13})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 1^K\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_{10},I_{12}}t_{J_7,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{12}, J_{10}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_{10},I_{12}} t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|1^K 1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_{10},I_{12}} t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_{10},K_{11}} t_{I_{12},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|1^K 1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_{10},K_{11}} t_{I_{12},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{14}, J_8, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_8,I_{14}} t_{J_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|1^K 1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_8,I_{14}} t_{J_8,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_8,K_{13}} t_{I_{14},J_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|1^K 1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_8,K_{13}} t_{I_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{10}, I_{12}, J_8, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|0^I 1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_{10},I_{12}} t_{J_8,K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_{11}, J_9, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1} t_{B_9,I_{11}} t_{J_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1} t_{B_9,I_{11}} t_{J_9,K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1} t_{B_9,K_{12}} t_{I_{11},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1} t_{B_9,K_{12}} t_{I_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_{13}, J_7, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1} t_{B_7,I_{13}} t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1} t_{B_7,I_{13}} t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|1^I 0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1} t_{B_7,K_{14}} t_{I_{13},J_7}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I | \hat{g} | 0^K 0^J \rangle \langle B_7 | \hat{0}^-_\beta | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{A_1} t_{B_7, K_{14}} t_{I_{13}, J_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_9, I_{11}, J_7, K_{14}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^J | \hat{g} | 1^I 0^K \rangle \langle B_9 | \hat{0}^-_\alpha | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{A_1} t_{B_9, I_{11}} t_{J_7, K_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_9, I_{11}, J_{10}, K_{12}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^J | \hat{g} | 1^I 0^K \rangle \langle B_9 | \hat{0}^-_\alpha | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_9, I_{11}} t_{J_{10}, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I | \hat{g} | 0^K 1^J \rangle \langle B_9 | \hat{0}^-_\alpha | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_9, I_{11}} t_{J_{10}, K_{12}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^J | \hat{g} | 1^I 0^K \rangle \langle B_9 | \hat{0}^-_\alpha | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_9, K_{12}} t_{I_{11}, J_{10}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I | \hat{g} | 0^K 1^J \rangle \langle B_9 | \hat{0}^-_\alpha | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_9, K_{12}} t_{I_{11}, J_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_7, I_{13}, J_8, K_{14}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^J | \hat{g} | 1^I 0^K \rangle \langle B_7 | \hat{0}^-_\beta | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{A_1} t_{B_7, I_{13}} t_{J_8, K_{14}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I | \hat{g} | 0^K 1^J \rangle \langle B_7 | \hat{0}^-_\beta | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{A_1} t_{B_7, I_{13}} t_{J_8, K_{14}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^J | \hat{g} | 1^I 0^K \rangle \langle B_7 | \hat{0}^-_\beta | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{A_1} t_{B_7, K_{14}} t_{I_{13}, J_8}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I | \hat{g} | 0^K 1^J \rangle \langle B_7 | \hat{0}^-_\beta | B_1 \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{A_1} t_{B_7, K_{14}} t_{I_{13}, J_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_9, I_{11}, J_8, K_{14}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^J | \hat{g} | 1^I 0^K \rangle \langle B_9 | \hat{0}^-_\alpha | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_8 | \hat{1}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{A_1} t_{B_9, I_{11}} t_{J_8, K_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{10}, I_{11}, J_9, K_{12}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^J | \hat{g} | 1^I 0^K \rangle \langle B_{10} | \hat{1}^-_\alpha | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_{10}, I_{11}} t_{J_9, K_{12}}$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^K 0^J \rangle \langle B_{10} | \hat{1}^-_\alpha | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_{10}, I_{11}} t_{J_9, K_{12}}$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^J | \hat{g} | 1^I 0^K \rangle \langle B_{10} | \hat{1}^-_\alpha | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{12} | \hat{0}^+_\alpha | K_0 \rangle t_{A_1} t_{B_{10}, K_{12}} t_{I_{11}, J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^K0^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_{10},K_{12}}t_{I_{11},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_{13},J_7,K_{14})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|1^I0^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^K0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_7,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|1^I0^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_8,K_{14}}t_{I_{13},J_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^K0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_8,K_{14}}t_{I_{13},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{11},J_7,K_{14})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|1^I0^K\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{11},J_{10},K_{12})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I0^K\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^K1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_{10},K_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I0^K\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_{10},K_{12}}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^K1^J\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_{10},K_{12}}t_{I_{11},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_{13},J_8,K_{14})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I0^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^K1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_8,K_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I0^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_8,K_{14}}t_{I_{13},J_8}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^K1^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_8,K_{14}}t_{I_{13},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{11},J_8,K_{14})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^J|\hat{g}|1^I 0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_{11},J_9,K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_9,K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{11}}t_{I_{11},J_9}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{11}}t_{I_{11},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_{13},J_7,K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_7,K_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_{13},J_7}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_{13},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_{11},J_7,K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_{11},J_{10},K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_{10},K_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{11}}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{11}}t_{I_{11},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_{13},J_8,K_{13})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^K1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^K1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_{13},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_{11},J_8,K_{13})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^J|\hat{g}|1^I1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_9,I_{11}}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{11},J_9,K_{11})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|1^I1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_9,K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_9,K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|1^I1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_{11},J_9}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_{11},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_{13},J_7,K_{13})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|1^I1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_7,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K0^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_7,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|1^I1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_{13},J_7}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K0^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_{13},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{11},J_7,K_{13})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^J|\hat{g}|1^I1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{11},J_{10},K_{11})\rangle=$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_{10},K_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_{11},J_{10}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_{11},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_{13},J_8,K_{13})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_8,K_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_{13},J_8}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_{13},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{11},J_8,K_{13})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^J|\hat{g}|1^I1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_{10},I_{11}}t_{J_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_{12},J_9,K_{14})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_{12},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_{12},J_9,K_{14})\rangle =$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K0^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_8,K_{14}}t_{I_{12},J_9}$$

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$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_{12},J_{10}}$$

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$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I|\hat{g}|0^K 1^J\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{10}|\hat{1}_\alpha^-|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1} t_{B_8,K_{14}} t_{I_{12},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_{12}, J_9, K_{13})\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|1^K 0^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle \langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_7,K_{13}} t_{I_{12},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{12}, J_9, K_{13})\rangle =$$

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$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{12}, J_{10}, K_{13})\rangle =$$

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$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_{11}, J_9, K_{14})\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I|\hat{g}|0^K 0^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1} t_{B_7,K_{14}} t_{I_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{11}, J_9, K_{14})\rangle =$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I|\hat{g}|0^K 0^J\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle \langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1} t_{B_8,K_{14}} t_{I_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_{11}, J_{10}, K_{14})\rangle =$$

$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I | \hat{g} | 0^K 1^J \rangle \langle B_7 | \hat{0}^-_\beta | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{A_1} t_{B_7, K_{14}} t_{I_{11}, J_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_8, I_{11}, J_{10}, K_{14}) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^K 1^J \rangle \langle B_8 | \hat{1}^-_\beta | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle t_{A_1} t_{B_8, K_{14}} t_{I_{11}, J_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_7, I_{11}, J_9, K_{13}) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I | \hat{g} | 1^K 0^J \rangle \langle B_7 | \hat{0}^-_\beta | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle t_{A_1} t_{B_7, K_{13}} t_{I_{11}, J_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_8, I_{11}, J_9, K_{13}) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 1^K 0^J \rangle \langle B_8 | \hat{1}^-_\beta | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_9 | \hat{0}^-_\alpha | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle t_{A_1} t_{B_8, K_{13}} t_{I_{11}, J_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_7, I_{11}, J_{10}, K_{13}) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I | \hat{g} | 1^K 1^J \rangle \langle B_7 | \hat{0}^-_\beta | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle t_{A_1} t_{B_7, K_{13}} t_{I_{11}, J_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_8, I_{11}, J_{10}, K_{13}) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 1^K 1^J \rangle \langle B_8 | \hat{1}^-_\beta | B_1 \rangle \langle I_{11} | \hat{1}^+_\alpha | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle t_{A_1} t_{B_8, K_{13}} t_{I_{11}, J_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{14}, I_9, J_{12}, K_7) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 0^K 0^J \rangle \langle B_{14} | \hat{0}^+_\beta | B_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_{12} | \hat{0}^+_\alpha | J_0 \rangle \langle K_7 | \hat{0}^-_\beta | K_0 \rangle t_{A_1} t_{B_{14}, K_7} t_{I_9, J_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{14}, I_9, J_{12}, K_8) \rangle =$$
$$+ \tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 1^K 0^J \rangle \langle B_{14} | \hat{0}^+_\beta | B_1 \rangle \langle I_9 | \hat{0}^-_\alpha | I_0 \rangle \langle J_{12} | \hat{0}^+_\alpha | J_0 \rangle \langle K_8 | \hat{1}^-_\beta | K_0 \rangle t_{A_1} t_{B_{14}, K_8} t_{I_9, J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{14}, I_{10}, J_{12}, K_7)\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^K 0^J\rangle\langle B_{14}|\hat{0}_{\beta}^+|B_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_7|\hat{0}_{\beta}^-|K_0\rangle t_{A_1}t_{B_{14},K_7}t_{I_{10},J_{12}}$$

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$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^J|\hat{g}|1^I 1^K\rangle \langle B_{14}|\hat{0}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle \langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1} t_{B_{14},I_8} t_{J_{12},K_{10}}$$

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$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^J|\hat{g}|0^I 0^K\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_7|\hat{0}^-_\beta|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle \langle K_9|\hat{0}^-_\alpha|K_0\rangle t_{A_1} t_{B_{13},I_7} t_{J_{12},K_9}$$

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$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_7|\hat{0}_\beta^-|K_0\rangle t_{A_1} t_{B_{10},J_{12}} t_{I_{14},K_7}$$

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$$\langle(A_1, B_1)|\hat{H}|(A_1, B_8, I_{14}, J_{12}, K_9)\rangle =$$

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$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_7,I_{13}}t_{J_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_8, I_{13}, J_{11}, K_{10})\rangle =$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^J|\hat{g}|1^I 1^K\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle\langle K_{10}|\hat{1}^-_\alpha|K_0\rangle t_{A_1}t_{B_8,I_{13}}t_{J_{11},K_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_9, J_{12}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|0^K 0^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_9,K_{12}}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|0^K 0^J\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{12}|\hat{0}^+_\alpha|K_0\rangle t_{A_1}t_{B_9,K_{12}}t_{I_9,J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_7, J_{14}, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|0^K 0^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_7,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_7,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K0^J\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_7,J_{12},K_{14})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^J0^K\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_7,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_{10},J_{12},K_{12})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^J0^K\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_{10},K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^K0^J\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_{10},K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^J0^K\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_9,K_{12}}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^K0^J\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_9,K_{12}}t_{I_{10},J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_8,J_{14},K_{14})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^J0^K\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^K0^J\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_8,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^J0^K\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^K0^J\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_8,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_8,J_{12},K_{14})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^J0^K\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_9,J_{12},K_{12})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J0^K\rangle\langle B_{10}|\hat{1}_{\alpha}^-|B_1\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K0^J\rangle\langle B_{10}|\hat{1}_{\alpha}^-|B_1\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^J0^K\rangle\langle B_{10}|\hat{1}_{\alpha}^-|B_1\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{A_1}t_{B_{10},K_{12}}t_{I_9,J_{12}}$$

$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{10}|\hat{1}_{\alpha}^{-}|B_{1}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{10},K_{12}}t_{I_{9},J_{12}}$

$\langle(A_{1},B_{1})|\hat{H}|(A_{1},B_{8},I_{7},J_{14},K_{14})\rangle =$

$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{8}|\hat{1}_{\beta}^{-}|B_{1}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{8},J_{14}}t_{I_{7},K_{14}}$

$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{8}|\hat{1}_{\beta}^{-}|B_{1}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{8},J_{14}}t_{I_{7},K_{14}}$

$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{8}|\hat{1}_{\beta}^{-}|B_{1}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{8},K_{14}}t_{I_{7},J_{14}}$

$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{8}|\hat{1}_{\beta}^{-}|B_{1}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{8},K_{14}}t_{I_{7},J_{14}}$

$\langle(A_{1},B_{1})|\hat{H}|(A_{1},B_{10},I_{7},J_{12},K_{14})\rangle =$

$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{10}|\hat{1}_{\alpha}^{-}|B_{1}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{10},J_{12}}t_{I_{7},K_{14}}$

$\langle(A_{1},B_{1})|\hat{H}|(A_{1},B_{10},I_{10},J_{12},K_{12})\rangle =$

$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{10}|\hat{1}_{\alpha}^{-}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{10},J_{12}}t_{I_{10},K_{12}}$

$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{10}|\hat{1}_{\alpha}^{-}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{10},J_{12}}t_{I_{10},K_{12}}$

$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{10}|\hat{1}_{\alpha}^{-}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{10},K_{12}}t_{I_{10},J_{12}}$

$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{10}|\hat{1}_{\alpha}^{-}|B_{1}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{10},K_{12}}t_{I_{10},J_{12}}$

$\langle(A_{1},B_{1})|\hat{H}|(A_{1},B_{8},I_{8},J_{14},K_{14})\rangle =$

$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{8}|\hat{1}_{\beta}^{-}|B_{1}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{8},J_{14}}t_{I_{8},K_{14}}$

$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{8}|\hat{1}_{\beta}^{-}|B_{1}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{8},J_{14}}t_{I_{8},K_{14}}$

$+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{8}|\hat{1}_{\beta}^{-}|B_{1}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{8},K_{14}}t_{I_{8},J_{14}}$

$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{8}|\hat{1}_{\beta}^{-}|B_{1}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{8},K_{14}}t_{I_{8},J_{14}}$

$\langle(A_{1},B_{1})|\hat{H}|(A_{1},B_{10},I_{8},J_{12},K_{14})\rangle =$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^J0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_8,K_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_9,J_{12},K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^J1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^K0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^J1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{11}}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^K0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{11}}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_7,J_{14},K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^J1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^K0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^J1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^K0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_7,J_{12},K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^J1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_{10},J_{12},K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^J1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^K0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_{10},K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^J1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{11}}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^K0^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{11}}t_{I_{10},J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_8,J_{14},K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_7|\hat{0}^-_{\beta}|B_1\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_7|\hat{0}^-_{\beta}|B_1\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_7|\hat{0}^-_{\beta}|B_1\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_8,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 0^J\rangle\langle B_7|\hat{0}^-_{\beta}|B_1\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_8,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_9,I_8,J_{12},K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_9|\hat{0}^-_{\alpha}|B_1\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_1}t_{B_9,J_{12}}t_{I_8,K_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{10},I_9,J_{12},K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^J 1^K\rangle\langle B_{10}|\hat{1}^-_{\alpha}|B_1\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|1^K 0^J\rangle\langle B_{10}|\hat{1}^-_{\alpha}|B_1\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^J 1^K\rangle\langle B_{10}|\hat{1}^-_{\alpha}|B_1\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_9,J_{12}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|1^K 0^J\rangle\langle B_{10}|\hat{1}^-_{\alpha}|B_1\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_9,J_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_8,I_7,J_{14},K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^J 1^K\rangle\langle B_8|\hat{1}^-_{\beta}|B_1\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|1^K 0^J\rangle\langle B_8|\hat{1}^-_{\beta}|B_1\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^J 1^K\rangle\langle B_8|\hat{1}^-_{\beta}|B_1\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_7,J_{14}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|1^K 0^J\rangle\langle B_8|\hat{1}^-_{\beta}|B_1\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_7,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{10},I_7,J_{12},K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^J 1^K\rangle\langle B_{10}|\hat{1}^-_{\alpha}|B_1\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_7,K_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{10},I_{10},J_{12},K_{11})\rangle =$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^J1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^J1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_{10},J_{12}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K0^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_{10},J_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_8,J_{14},K_{13})\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^J1^K\rangle\langle B_8|\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K0^J\rangle\langle B_8|\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^J1^K\rangle\langle B_8|\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_8,J_{14}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K0^J\rangle\langle B_8|\hat{1}_{\bar\beta}^-|B_1\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar\beta}^+|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_8,J_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_8,J_{12},K_{13})\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^J1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_{\bar\beta}^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_{10},J_{12}}t_{I_8,K_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_9,J_{11},K_{12})\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^J0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_9,K_{12}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^J0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{12}}t_{I_9,J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{12}}t_{I_9,J_{11}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_7,J_{13},K_{14})\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^J0^K\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_{14}|\hat{0}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_{14}|\hat{0}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_7,K_{14}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^J0^K\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_{14}|\hat{0}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_7,J_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K1^J\rangle\langle B_7|\hat{0}_{\bar\beta}^-|B_1\rangle\langle I_7|\hat{0}_{\bar\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar\beta}^+|J_0\rangle\langle K_{14}|\hat{0}_{\bar\beta}^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_7, J_{11}, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^J0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_7,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_{10}, J_{11}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^K1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_{10},K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{12}}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^K1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{12}}t_{I_{10},J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_8, J_{13}, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^K1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_8,K_{14}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^K1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_8, J_{11}, K_{14})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J0^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_8,K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_{10}, I_9, J_{11}, K_{12})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_9,K_{12}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J0^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{12}}t_{I_9,J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{12}}t_{I_9,J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_8, I_7, J_{13}, K_{14}) \rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I | \hat{g} | 1^J 0^K \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{A_1} t_{B_8, J_{13}} t_{I_7, K_{14}}$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I | \hat{g} | 0^K 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{A_1} t_{B_8, J_{13}} t_{I_7, K_{14}}$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I | \hat{g} | 1^J 0^K \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{A_1} t_{B_8, K_{14}} t_{I_7, J_{13}}$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I | \hat{g} | 0^K 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{A_1} t_{B_8, K_{14}} t_{I_7, J_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{10}, I_7, J_{11}, K_{14}) \rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I | \hat{g} | 1^J 0^K \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_7 | \hat{0}_\beta^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{A_1} t_{B_{10}, J_{11}} t_{I_7, K_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{10}, I_{10}, J_{11}, K_{12}) \rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 1^J 0^K \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_{10}, J_{11}} t_{I_{10}, K_{12}}$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^K 1^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_{10}, J_{11}} t_{I_{10}, K_{12}}$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 1^J 0^K \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_{10}, K_{12}} t_{I_{10}, J_{11}}$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^K 1^J \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_{10}, K_{12}} t_{I_{10}, J_{11}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_8, I_8, J_{13}, K_{14}) \rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 1^J 0^K \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{A_1} t_{B_8, J_{13}} t_{I_8, K_{14}}$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^K 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{A_1} t_{B_8, J_{13}} t_{I_8, K_{14}}$$

$$+\tfrac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 1^J 0^K \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{A_1} t_{B_8, K_{14}} t_{I_8, J_{13}}$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^K 1^J \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_{13} | \hat{1}_\beta^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{A_1} t_{B_8, K_{14}} t_{I_8, J_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_{10}, I_8, J_{11}, K_{14}) \rangle =$$

$$+\tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 1^J 0^K \rangle \langle B_{10} | \hat{1}_\alpha^- | B_1 \rangle \langle I_8 | \hat{1}_\beta^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle \langle K_{14} | \hat{0}_\beta^+ | K_0 \rangle t_{A_1} t_{B_{10}, J_{11}} t_{I_8, K_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_9, J_{11}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|1^J 1^K\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_9|\hat{0}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_9, J_{11}} t_{I_9, K_{11}}$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|1^K 1^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_9|\hat{0}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_9, J_{11}} t_{I_9, K_{11}}$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|1^J 1^K\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_9|\hat{0}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_9, K_{11}} t_{I_9, J_{11}}$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|1^K 1^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_9|\hat{0}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_9, K_{11}} t_{I_9, J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_7, J_{13}, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|1^J 1^K\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_7|\hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_7, J_{13}} t_{I_7, K_{13}}$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|1^K 1^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_7|\hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_7, J_{13}} t_{I_7, K_{13}}$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|1^J 1^K\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_7|\hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_7, K_{13}} t_{I_7, J_{13}}$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|1^K 1^J\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_7|\hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_7, K_{13}} t_{I_7, J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_7, J_{11}, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^B 0^I|\hat{g}|1^J 1^K\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_7|\hat{0}_\beta^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_9, J_{11}} t_{I_7, K_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_9, I_{10}, J_{11}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^B 1^I|\hat{g}|1^J 1^K\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_9, J_{11}} t_{I_{10}, K_{11}}$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^B 1^I|\hat{g}|1^K 1^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_9, J_{11}} t_{I_{10}, K_{11}}$$

$$+\tfrac{-1}{12}\sum_I \sum_J \sum_K \langle 0^B 1^I|\hat{g}|1^J 1^K\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_9, K_{11}} t_{I_{10}, J_{11}}$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^B 1^I|\hat{g}|1^K 1^J\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle \langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1} t_{B_9, K_{11}} t_{I_{10}, J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_1, B_7, I_8, J_{13}, K_{13})\rangle =$$

$$+\tfrac{1}{12}\sum_I \sum_J \sum_K \langle 0^B 1^I|\hat{g}|1^J 1^K\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle \langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1} t_{B_7, J_{13}} t_{I_8, K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^K1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,J_{13}}t_{I_8,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J1^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_8,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^K1^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_8,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_9,I_8,J_{11},K_{13})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|1^J1^K\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_9,J_{11}}t_{I_8,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_9,J_{11},K_{11})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_9,K_{11}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_9,J_{11}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_9,J_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_7,J_{13},K_{13})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_7,K_{13}}$$

$$+\tfrac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_7,J_{13}}$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_7,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_7,J_{11},K_{13})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^J1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_7,K_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_{10},J_{11},K_{11})\rangle=$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^J1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_{10},K_{11}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^J1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_{10},J_{11}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_{10},J_{11}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_8,J_{13},K_{13})\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^J1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,J_{13}}t_{I_8,K_{13}}$$

$$+\frac{-1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^J1^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_8,J_{13}}$$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^K1^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_8,J_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_{10},I_8,J_{11},K_{13})\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|1^J1^K\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle\langle K_{13}|\hat{1}_\beta^+|K_0\rangle t_{A_1}t_{B_{10},J_{11}}t_{I_8,K_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_9,J_{12},K_{14})\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|0^K0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_9,J_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_9,J_{12},K_{14})\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|0^K0^J\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_8,K_{14}}t_{I_9,J_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_{10},J_{12},K_{14})\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B1^I|\hat{g}|0^K0^J\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_{14}|\hat{0}_\beta^+|K_0\rangle t_{A_1}t_{B_7,K_{14}}t_{I_{10},J_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_{10},J_{12},K_{14})\rangle =$

$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B1^I|\hat{g}|0^K0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{14}|\hat{0}^+_\beta|K_0\rangle t_{A_1}t_{B_8,K_{14}}t_{I_{10},J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_9,J_{12},K_{13})\rangle =$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 0^B0^I|\hat{g}|1^K0^J\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_7,K_{13}}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_8,I_9,J_{12},K_{13})\rangle =$$
$$+\frac{1}{12}\sum_I\sum_J\sum_K\langle 1^B0^I|\hat{g}|1^K0^J\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle\langle K_{13}|\hat{1}^+_\beta|K_0\rangle t_{A_1}t_{B_8,K_{13}}t_{I_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_1,B_7,I_{10},J_{12},K_{13})\rangle =$$
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$\langle (A_1, B_1) | \hat{H} | (A_1, B_8, I_{10}, J_{11}, K_{14}) \rangle =$

$+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^K 1^J \rangle \langle B_8 | \hat{1}_{\beta}^- | B_1 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle \langle K_{14} | \hat{0}_{\beta}^+ | K_0 \rangle t_{A_1} t_{B_8, K_{14}} t_{I_{10}, J_{11}}$

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$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|1^K 1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{11}}t_{I_7,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_9,I_8,J_{13},K_{11})\rangle =$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_9,K_{11}}t_{I_8,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{10},I_7,J_{13},K_{11})\rangle =$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|1^K 1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_7,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_{10},I_8,J_{13},K_{11})\rangle =$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 1^I|\hat{g}|1^K 1^J\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle\langle K_{11}|\hat{1}_\alpha^+|K_0\rangle t_{A_1}t_{B_{10},K_{11}}t_{I_8,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_7,I_9,J_{14},K_{12})\rangle =$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 0^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_7,J_{14}}t_{I_9,K_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_1,B_8,I_9,J_{14},K_{12})\rangle =$$
$$+\tfrac{1}{12}\sum_I\sum_J\sum_K\langle 1^B 0^I|\hat{g}|0^J 0^K\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_1}t_{B_8,J_{14}}t_{I_9,K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_7, I_{10}, J_{14}, K_{12}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I | \hat{g} | 0^J 0^K \rangle \langle B_7 | \hat{0}_{\bar{\beta}}^- | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{14} | \hat{0}_{\bar{\beta}}^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_7, J_{14}} t_{I_{10}, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_8, I_{10}, J_{14}, K_{12}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 0^J 0^K \rangle \langle B_8 | \hat{1}_{\bar{\beta}}^- | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{14} | \hat{0}_{\bar{\beta}}^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_8, J_{14}} t_{I_{10}, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_7, I_9, J_{13}, K_{12}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 1^J 0^K \rangle \langle B_7 | \hat{0}_{\bar{\beta}}^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{13} | \hat{1}_{\bar{\beta}}^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_7, J_{13}} t_{I_9, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_8, I_9, J_{13}, K_{12}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I | \hat{g} | 1^J 0^K \rangle \langle B_8 | \hat{1}_{\bar{\beta}}^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{13} | \hat{1}_{\bar{\beta}}^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_8, J_{13}} t_{I_9, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_7, I_{10}, J_{13}, K_{12}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I | \hat{g} | 1^J 0^K \rangle \langle B_7 | \hat{0}_{\bar{\beta}}^- | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{13} | \hat{1}_{\bar{\beta}}^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_7, J_{13}} t_{I_{10}, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_8, I_{10}, J_{13}, K_{12}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I | \hat{g} | 1^J 0^K \rangle \langle B_8 | \hat{1}_{\bar{\beta}}^- | B_1 \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{13} | \hat{1}_{\bar{\beta}}^+ | J_0 \rangle \langle K_{12} | \hat{0}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_8, J_{13}} t_{I_{10}, K_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_1, B_7, I_9, J_{14}, K_{11}) \rangle =$$

$$+ \tfrac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I | \hat{g} | 0^J 1^K \rangle \langle B_7 | \hat{0}_{\bar{\beta}}^- | B_1 \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{14} | \hat{0}_{\bar{\beta}}^+ | J_0 \rangle \langle K_{11} | \hat{1}_\alpha^+ | K_0 \rangle t_{A_1} t_{B_7, J_{14}} t_{I_9, K_{11}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_8, I_9, J_{14}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|0^J 1^K\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar{\beta}}^+|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^+|K_0\rangle t_{A_1} t_{B_8,J_{14}} t_{I_9,K_{11}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_7, I_{10}, J_{14}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_7|\hat{0}_{\bar{\beta}}^-|B_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar{\beta}}^+|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^+|K_0\rangle t_{A_1} t_{B_7,J_{14}} t_{I_{10},K_{11}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_8, I_{10}, J_{14}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|0^J 1^K\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{14}|\hat{0}_{\bar{\beta}}^+|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^+|K_0\rangle t_{A_1} t_{B_8,J_{14}} t_{I_{10},K_{11}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_7, I_9, J_{13}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_7|\hat{0}_{\bar{\beta}}^-|B_1\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar{\beta}}^+|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^+|K_0\rangle t_{A_1} t_{B_7,J_{13}} t_{I_9,K_{11}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_8, I_9, J_{13}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar{\beta}}^+|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^+|K_0\rangle t_{A_1} t_{B_8,J_{13}} t_{I_9,K_{11}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_7, I_{10}, J_{13}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 0^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_7|\hat{0}_{\bar{\beta}}^-|B_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar{\beta}}^+|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^+|K_0\rangle t_{A_1} t_{B_7,J_{13}} t_{I_{10},K_{11}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_1, B_8, I_{10}, J_{13}, K_{11})\rangle =$$

$$+\tfrac{1}{12}\sum_I\sum_J\sum_K \langle 1^B 1^I|\hat{g}|1^J 1^K\rangle\langle B_8|\hat{1}_{\bar{\beta}}^-|B_1\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar{\beta}}^+|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^+|K_0\rangle t_{A_1} t_{B_8,J_{13}} t_{I_{10},K_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{12}, I_9, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},I_9}t_{B_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},I_9}t_{B_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_{12},I_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_{12},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_{14}, I_7, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},I_7}t_{B_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},I_7}t_{B_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},J_7}t_{B_{14},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},J_7}t_{B_{14},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{14}, I_9, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{12},I_9}t_{B_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{12}, I_9, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{12},I_9}t_{B_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{12},I_9}t_{B_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{12},J_{10}}t_{B_{12},I_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{12},J_{10}}t_{B_{12},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_{14}, I_7, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},I_7}t_{B_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},I_7}t_{B_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},J_8}t_{B_{14},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^J0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_{14},I_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_{14},I_9,J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{12},I_9}t_{B_{14},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_{12},I_{10},J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},J_9}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},J_9}t_{B_{12},I_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_{14},I_8,J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},I_8}t_{B_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},I_8}t_{B_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_{14},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_{14},I_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_{14},I_{10},J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{12},I_{10}}t_{B_{14},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_{12},I_{10},J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{12},J_{10}}t_{B_{12},I_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_{14},I_8,J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},I_8}t_{B_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},I_8}t_{B_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},J_8}t_{B_{14},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},J_8}t_{B_{14},I_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_{14},I_{10},J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{12},I_{10}}t_{B_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_{11},I_9,J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},I_9}t_{B_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},I_9}t_{B_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_{11},I_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J0^I\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9}t_{B_{11},I_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_{13},I_7,J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},I_7}t_{B_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},I_7}t_{B_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},J_7}t_{B_{13},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J0^I\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},J_7}t_{B_{13},I_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_{13},I_9,J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{12},I_9}t_{B_{13},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_{11},I_9,J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_9}t_{B_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_9}t_{B_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_{11},I_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_{11},I_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_{13},I_7,J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},I_7}t_{B_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},I_7}t_{B_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_{13},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_{13},I_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_{13},I_9,J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{12},I_9}t_{B_{13},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_{11},I_{10},J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},J_9}t_{B_{11},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},J_9}t_{B_{11},I_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_{13},I_8,J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},I_8}t_{B_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},I_8}t_{B_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_{13},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_{13},I_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_{13},I_{10},J_7)\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{12},I_{10}}t_{B_{13},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_{11},I_{10},J_{10})\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},I_{10}}t_{B_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_{11},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_{11},I_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_{13},I_8,J_8)\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},I_8}t_{B_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},I_8}t_{B_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_{13},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_{13},I_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_{13},I_{10},J_8)\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{12},I_{10}}t_{B_{13},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_{12},I_9,J_9)\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},I_9}t_{B_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^J0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},I_9}t_{B_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9}t_{B_{12},I_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^J0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9}t_{B_{12},I_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_{14},I_7,J_7)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{13},I_7}t_{B_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^J0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{13},I_7}t_{B_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{13},J_7}t_{B_{14},I_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^J0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{13},J_7}t_{B_{14},I_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_{14},I_9,J_7)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{11},I_9}t_{B_{14},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_{12},I_9,J_{10})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},I_9}t_{B_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},I_9}t_{B_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},J_{10}}t_{B_{12},I_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},J_{10}}t_{B_{12},I_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_{14},I_7,J_8)\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{13},I_7}t_{B_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{13},I_7}t_{B_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{13},J_8}t_{B_{14},I_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{13},J_8}t_{B_{14},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{14}, I_9, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{11},I_9}t_{B_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{12}, I_{10}, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_{12},I_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_{14}, I_8, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_{14},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_{14},I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{14}, I_{10}, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{11},I_{10}}t_{B_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{12}, I_{10}, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_{12},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_{12},I_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_{14}, I_8, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_{14},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_{14},I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{14}, I_{10}, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{11},I_{10}}t_{B_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{11}, I_9, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},I_9}t_{B_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^J 0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},I_9}t_{B_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_{11},I_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^J 0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_{11},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_{13}, I_7, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},I_7}t_{B_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^J 0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},I_7}t_{B_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_{13},I_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^J 0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_{13},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{13}, I_9, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{11},I_9}t_{B_{13},J_7}$$

$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{11}, I_9, J_{10})\rangle =$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},I_9} t_{B_{11},J_{10}}$

$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},I_9} t_{B_{11},J_{10}}$

$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},J_{10}} t_{B_{11},I_9}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},J_{10}} t_{B_{11},I_9}$

$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_{13}, I_7, J_8)\rangle =$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{13},I_7} t_{B_{13},J_8}$

$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{13},I_7} t_{B_{13},J_8}$

$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{13},J_8} t_{B_{13},I_7}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{13},J_8} t_{B_{13},I_7}$

$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{13}, I_9, J_8)\rangle =$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{11},I_9} t_{B_{13},J_8}$

$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{11}, I_{10}, J_9)\rangle =$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},I_{10}} t_{B_{11},J_9}$

$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},I_{10}} t_{B_{11},J_9}$

$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9} t_{B_{11},I_{10}}$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9} t_{B_{11},I_{10}}$

$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_{13}, I_8, J_7)\rangle =$

$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{13},I_8} t_{B_{13},J_7}$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_{13},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_{13},I_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_{13},I_{10},J_7)\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{11},I_{10}}t_{B_{13},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_{11},I_{10},J_{10})\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_{11},I_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_{11},I_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_{13},I_8,J_8)\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},I_8}t_{B_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_{13},I_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_{13},I_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_{13},I_{10},J_8)\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{11},I_{10}}t_{B_{13},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_{14},I_7,J_9)\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},J_9}t_{B_{14},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{14}, I_8, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},J_9}t_{B_{14},I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{14}, I_7, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_{14},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{14}, I_8, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_{14},I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{13}, I_7, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|0^J 0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},J_9}t_{B_{13},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{13}, I_8, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},J_9}t_{B_{13},I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{13}, I_7, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_{13},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{13}, I_8, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|1^J 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_{13},I_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_{14}, I_7, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9} t_{B_{14},I_7}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_{14}, I_8, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9} t_{B_{14},I_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_{14}, I_7, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}} t_{B_{14},I_7}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_{14}, I_8, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}} t_{B_{14},I_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_{13}, I_7, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^J 0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9} t_{B_{13},I_7}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_{13}, I_8, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9} t_{B_{13},I_8}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{11}, B_{13}, I_7, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}} t_{B_{13},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{13}, I_8, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^B|\hat{g}|1^J 1^I\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_{13}|\hat{1}^+_\beta|B_1\rangle \langle I_8|\hat{1}^-_\beta|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}} t_{B_{13},I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_{12}, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^B 0^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},B_9} t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 0^B|\hat{g}|0^J 0^I\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},B_9} t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^B 0^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},J_9} t_{B_9,I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 0^B|\hat{g}|0^J 0^I\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},J_9} t_{B_9,I_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_7, I_{14}, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^B 0^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},B_7} t_{I_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 0^B|\hat{g}|0^J 0^I\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},B_7} t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^B 0^J\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7} t_{B_7,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 0^B|\hat{g}|0^J 0^I\rangle \langle A_{14}|\hat{0}^+_\beta|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7} t_{B_7,I_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_{14}, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^B 0^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{12},B_9} t_{I_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_{12}, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^B 1^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},B_9} t_{I_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 0^B|\hat{g}|1^J 0^I\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},B_9} t_{I_{12},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^B 1^J\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}} t_{B_9,I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 0^B|\hat{g}|1^J 0^I\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}} t_{B_9,I_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_7, I_{14}, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|0^B 1^J\rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},B_7} t_{I_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^A 0^B|\hat{g}|1^J 0^I\rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},B_7} t_{I_{14},J_8}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|0^B 1^J\rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},J_8} t_{B_7,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^A 0^B|\hat{g}|1^J 0^I\rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{14},J_8} t_{B_7,I_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_{14}, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|0^B 1^J\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{12},B_9} t_{I_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{10}, I_{12}, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^B 0^J\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},B_{10}} t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|0^J 0^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},B_{10}} t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^B 0^J\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9} t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|0^J 0^I\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{12},J_9} t_{B_{10},I_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_8, I_{14}, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^B 0^J\rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},B_8} t_{I_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|0^J 0^I\rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},B_8} t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^B 0^J\rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},J_7} t_{B_8,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|0^J 0^I\rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{14},J_7} t_{B_8,I_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{10}, I_{14}, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^I|\hat{g}|1^B 0^J\rangle \langle A_{12}|\hat{0}_\alpha^+|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{12},B_{10}} t_{I_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{10}, I_{12}, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},B_{10}}t_{I_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},B_{10}}t_{I_{12},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_{10},I_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_8, I_{14}, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},B_8}t_{I_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},B_8}t_{I_{14},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_8,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_8,I_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{10}, I_{14}, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{12},B_{10}}t_{I_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_{11}, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},B_9}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},B_9}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},J_9}t_{B_9,I_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},J_9}t_{B_9,I_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_7, I_{13}, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},B_7}t_{I_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},B_7}t_{I_{13},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_7,I_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_{14}|\hat{0}_{\beta}^+|A_1\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{13}|\hat{1}_{\beta}^+|I_0\rangle\langle J_7|\hat{0}_{\beta}^-|J_0\rangle t_{A_{14},J_7}t_{B_7,I_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_9,I_{13},J_7)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_{12}|\hat{0}_{\alpha}^+|A_1\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{13}|\hat{1}_{\beta}^+|I_0\rangle\langle J_7|\hat{0}_{\beta}^-|J_0\rangle t_{A_{12},B_9}t_{I_{13},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_9,I_{11},J_{10})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{12}|\hat{0}_{\alpha}^+|A_1\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_{12},B_9}t_{I_{11},J_{10}}$$
$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{12}|\hat{0}_{\alpha}^+|A_1\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_{12},B_9}t_{I_{11},J_{10}}$$
$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{12}|\hat{0}_{\alpha}^+|A_1\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_{12},J_{10}}t_{B_9,I_{11}}$$
$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{12}|\hat{0}_{\alpha}^+|A_1\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_{12},J_{10}}t_{B_9,I_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_7,I_{13},J_8)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{14}|\hat{0}_{\beta}^+|A_1\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{13}|\hat{1}_{\beta}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle t_{A_{14},B_7}t_{I_{13},J_8}$$
$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{14}|\hat{0}_{\beta}^+|A_1\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{13}|\hat{1}_{\beta}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle t_{A_{14},B_7}t_{I_{13},J_8}$$
$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{14}|\hat{0}_{\beta}^+|A_1\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{13}|\hat{1}_{\beta}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle t_{A_{14},J_8}t_{B_7,I_{13}}$$
$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{14}|\hat{0}_{\beta}^+|A_1\rangle\langle B_7|\hat{0}_{\beta}^-|B_1\rangle\langle I_{13}|\hat{1}_{\beta}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle t_{A_{14},J_8}t_{B_7,I_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_9,I_{13},J_8)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{12}|\hat{0}_{\alpha}^+|A_1\rangle\langle B_9|\hat{0}_{\alpha}^-|B_1\rangle\langle I_{13}|\hat{1}_{\beta}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle t_{A_{12},B_9}t_{I_{13},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_{10},I_{11},J_9)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{12}|\hat{0}_{\alpha}^+|A_1\rangle\langle B_{10}|\hat{1}_{\alpha}^-|B_1\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_{12},B_{10}}t_{I_{11},J_9}$$
$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_{12}|\hat{0}_{\alpha}^+|A_1\rangle\langle B_{10}|\hat{1}_{\alpha}^-|B_1\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_{12},B_{10}}t_{I_{11},J_9}$$
$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{12}|\hat{0}_{\alpha}^+|A_1\rangle\langle B_{10}|\hat{1}_{\alpha}^-|B_1\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_{12},J_9}t_{B_{10},I_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{12},J_9}t_{B_{10},I_{11}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{14},B_8,I_{13},J_7)\rangle=$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^B0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},B_8}t_{I_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},B_8}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^B0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_8,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{14},J_7}t_{B_8,I_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{12},B_{10},I_{13},J_7)\rangle=$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^B0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{12},B_{10}}t_{I_{13},J_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_{12},B_{10},I_{11},J_{10})\rangle=$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^B1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},B_{10}}t_{I_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},B_{10}}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^B1^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_{10},I_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^J1^I\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}}t_{B_{10},I_{11}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{14},B_8,I_{13},J_8)\rangle=$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^B1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},B_8}t_{I_{13},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},B_8}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^B1^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_8,I_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^J1^I\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{14},J_8}t_{B_8,I_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{12},B_{10},I_{13},J_8)\rangle=$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{12},B_{10}}t_{I_{13},J_8}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},B_9,I_{12},J_9)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},B_9}t_{I_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},B_9}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9}t_{B_9,I_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{11},J_9}t_{B_9,I_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{13},B_7,I_{14},J_7)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{13},B_7}t_{I_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{13},B_7}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{13},J_7}t_{B_7,I_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{13},J_7}t_{B_7,I_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},B_9,I_{14},J_7)\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{11},B_9}t_{I_{14},J_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},B_9,I_{12},J_{10})\rangle =$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},B_9}t_{I_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},B_9}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},J_{10}}t_{B_9,I_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},J_{10}}t_{B_9,I_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{13},B_7,I_{14},J_8)\rangle =$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_{13}|\hat{1}^+_{\beta}|A_1\rangle\langle B_7|\hat{0}^-_{\beta}|B_1\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_{13},B_7}t_{I_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J0^I\rangle\langle A_{13}|\hat{1}^+_{\beta}|A_1\rangle\langle B_7|\hat{0}^-_{\beta}|B_1\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_{13},B_7}t_{I_{14},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_{13}|\hat{1}^+_{\beta}|A_1\rangle\langle B_7|\hat{0}^-_{\beta}|B_1\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_{13},J_8}t_{B_7,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J0^I\rangle\langle A_{13}|\hat{1}^+_{\beta}|A_1\rangle\langle B_7|\hat{0}^-_{\beta}|B_1\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_{13},J_8}t_{B_7,I_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_9,I_{14},J_8)\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_{11}|\hat{1}^+_{\alpha}|A_1\rangle\langle B_9|\hat{0}^-_{\alpha}|B_1\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_{11},B_9}t_{I_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_{10},I_{12},J_9)\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_{11}|\hat{1}^+_{\alpha}|A_1\rangle\langle B_{10}|\hat{1}^-_{\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_{11},B_{10}}t_{I_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^J0^I\rangle\langle A_{11}|\hat{1}^+_{\alpha}|A_1\rangle\langle B_{10}|\hat{1}^-_{\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_{11},B_{10}}t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_{11}|\hat{1}^+_{\alpha}|A_1\rangle\langle B_{10}|\hat{1}^-_{\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_{11},J_9}t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^J0^I\rangle\langle A_{11}|\hat{1}^+_{\alpha}|A_1\rangle\langle B_{10}|\hat{1}^-_{\alpha}|B_1\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_{11},J_9}t_{B_{10},I_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_8,I_{14},J_7)\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_{13}|\hat{1}^+_{\beta}|A_1\rangle\langle B_8|\hat{1}^-_{\beta}|B_1\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_{13},B_8}t_{I_{14},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^J0^I\rangle\langle A_{13}|\hat{1}^+_{\beta}|A_1\rangle\langle B_8|\hat{1}^-_{\beta}|B_1\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_{13},B_8}t_{I_{14},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_{13}|\hat{1}^+_{\beta}|A_1\rangle\langle B_8|\hat{1}^-_{\beta}|B_1\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_{13},J_7}t_{B_8,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^J0^I\rangle\langle A_{13}|\hat{1}^+_{\beta}|A_1\rangle\langle B_8|\hat{1}^-_{\beta}|B_1\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_{13},J_7}t_{B_8,I_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_{10},I_{14},J_7)\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_{11}|\hat{1}^+_{\alpha}|A_1\rangle\langle B_{10}|\hat{1}^-_{\alpha}|B_1\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_{11},B_{10}}t_{I_{14},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_{10},I_{12},J_{10})\rangle=$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},B_{10}}t_{I_{12},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},B_{10}}t_{I_{12},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_{10},I_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J0^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}}t_{B_{10},I_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_8,I_{14},J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},B_8}t_{I_{14},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},B_8}t_{I_{14},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_8,I_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J0^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8}t_{B_8,I_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_{10},I_{14},J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{11},B_{10}}t_{I_{14},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_9,I_{11},J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},B_9}t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},B_9}t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_9,I_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^J1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9}t_{B_9,I_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_7,I_{13},J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},B_7}t_{I_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},B_7}t_{I_{13},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_7,I_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^J1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{13},J_7}t_{B_7,I_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_9, I_{13}, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_{11},B_9} t_{I_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_9, I_{11}, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},B_9} t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},B_9} t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}} t_{B_9,I_{11}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}} t_{B_9,I_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_7, I_{13}, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},B_7} t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},B_7} t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8} t_{B_7,I_{13}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{13},J_8} t_{B_7,I_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_9, I_{13}, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{11},B_9} t_{I_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{10}, I_{11}, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},B_{10}} t_{I_{11},J_9}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},B_{10}} t_{I_{11},J_9}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9} t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9} t_{B_{10},I_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_8, I_{13}, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{13},B_8}t_{I_{13},J_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{13},B_8}t_{I_{13},J_7}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{13},J_7}t_{B_8,I_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{13},J_7}t_{B_8,I_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{10}, I_{13}, J_7)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{11},B_{10}}t_{I_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{10}, I_{11}, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},B_{10}}t_{I_{11},J_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 1^B|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},B_{10}}t_{I_{11},J_{10}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},J_{10}}t_{B_{10},I_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 1^B|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{11},J_{10}}t_{B_{10},I_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_8, I_{13}, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{13},B_8}t_{I_{13},J_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 1^B|\hat{g}|1^J 1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{13},B_8}t_{I_{13},J_8}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{13},J_8}t_{B_8,I_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 1^B|\hat{g}|1^J 1^I\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{13},J_8}t_{B_8,I_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{10}, I_{13}, J_8)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{11},B_{10}}t_{I_{13},J_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{12}, B_7, I_{14}, J_9) \rangle =$$

$$+\tfrac{-1}{4} \sum_I \sum_J \langle 0^A 0^B | \hat{g} | 0^J 0^I \rangle \langle A_{12} | \hat{0}_\alpha^+ | A_1 \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle t_{A_{12}, J_9} t_{B_7, I_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{12}, B_8, I_{14}, J_9) \rangle =$$

$$+\tfrac{-1}{4} \sum_I \sum_J \langle 0^A 1^B | \hat{g} | 0^J 0^I \rangle \langle A_{12} | \hat{0}_\alpha^+ | A_1 \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle t_{A_{12}, J_9} t_{B_8, I_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{12}, B_7, I_{14}, J_{10}) \rangle =$$

$$+\tfrac{-1}{4} \sum_I \sum_J \langle 0^A 0^B | \hat{g} | 1^J 0^I \rangle \langle A_{12} | \hat{0}_\alpha^+ | A_1 \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle t_{A_{12}, J_{10}} t_{B_7, I_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{12}, B_8, I_{14}, J_{10}) \rangle =$$

$$+\tfrac{-1}{4} \sum_I \sum_J \langle 0^A 1^B | \hat{g} | 1^J 0^I \rangle \langle A_{12} | \hat{0}_\alpha^+ | A_1 \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle t_{A_{12}, J_{10}} t_{B_8, I_{14}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{12}, B_7, I_{13}, J_9) \rangle =$$

$$+\tfrac{-1}{4} \sum_I \sum_J \langle 0^A 0^B | \hat{g} | 0^J 1^I \rangle \langle A_{12} | \hat{0}_\alpha^+ | A_1 \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle t_{A_{12}, J_9} t_{B_7, I_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{12}, B_8, I_{13}, J_9) \rangle =$$

$$+\tfrac{-1}{4} \sum_I \sum_J \langle 0^A 1^B | \hat{g} | 0^J 1^I \rangle \langle A_{12} | \hat{0}_\alpha^+ | A_1 \rangle \langle B_8 | \hat{1}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle t_{A_{12}, J_9} t_{B_8, I_{13}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{12}, B_7, I_{13}, J_{10}) \rangle =$$

$$+\tfrac{-1}{4} \sum_I \sum_J \langle 0^A 0^B | \hat{g} | 1^J 1^I \rangle \langle A_{12} | \hat{0}_\alpha^+ | A_1 \rangle \langle B_7 | \hat{0}_\beta^- | B_1 \rangle \langle I_{13} | \hat{1}_\beta^+ | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle t_{A_{12}, J_{10}} t_{B_7, I_{13}}$$

$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_8, I_{13}, J_{10})\rangle =$

$+\frac{-1}{4} \sum_I \sum_J \langle 0^A 1^B|\hat{g}|1^J 1^I\rangle \langle A_{12}|\hat{0}^+_\alpha|A_1\rangle \langle B_8|\hat{1}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{12},J_{10}} t_{B_8,I_{13}}$

$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_7, I_{14}, J_9)\rangle =$

$+\frac{-1}{4} \sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^J 0^I\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9} t_{B_7,I_{14}}$

$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_8, I_{14}, J_9)\rangle =$

$+\frac{-1}{4} \sum_I \sum_J \langle 1^A 1^B|\hat{g}|0^J 0^I\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_8|\hat{1}^-_\beta|B_1\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9} t_{B_8,I_{14}}$

$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_7, I_{14}, J_{10})\rangle =$

$+\frac{-1}{4} \sum_I \sum_J \langle 1^A 0^B|\hat{g}|1^J 0^I\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}} t_{B_7,I_{14}}$

$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_8, I_{14}, J_{10})\rangle =$

$+\frac{-1}{4} \sum_I \sum_J \langle 1^A 1^B|\hat{g}|1^J 0^I\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_8|\hat{1}^-_\beta|B_1\rangle \langle I_{14}|\hat{0}^+_\beta|I_0\rangle \langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}} t_{B_8,I_{14}}$

$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_7, I_{13}, J_9)\rangle =$

$+\frac{-1}{4} \sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^J 1^I\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9} t_{B_7,I_{13}}$

$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_8, I_{13}, J_9)\rangle =$

$+\frac{-1}{4} \sum_I \sum_J \langle 1^A 1^B|\hat{g}|0^J 1^I\rangle \langle A_{11}|\hat{1}^+_\alpha|A_1\rangle \langle B_8|\hat{1}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_{11},J_9} t_{B_8,I_{13}}$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_7, I_{13}, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}} t_{B_7,I_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_8, I_{13}, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^J 1^I\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_{11},J_{10}} t_{B_8,I_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_9, J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{12},B_9} t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{12},B_9} t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{12},I_9} t_{B_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{12},I_9} t_{B_9,J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_7, I_7, J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{14},B_7} t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{14},B_7} t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{14},I_7} t_{B_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_{14}|\hat{0}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{14},I_7} t_{B_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_7, J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{12},B_9} t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_{10}, J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{12},B_9} t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{12},B_9} t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^B0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{12},I_{10}}t_{B_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{12},I_{10}}t_{B_9,J_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_7,I_8,J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^B0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{14},B_7}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{14},B_7}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^B0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{14},I_8}t_{B_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{14},I_8}t_{B_7,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_9,I_8,J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^B0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{12},B_9}t_{I_8,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{12},B_{10},I_9,J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^B0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{12},B_{10}}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{12},B_{10}}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^B0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{12},I_9}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{12},I_9}t_{B_{10},J_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{14},B_8,I_7,J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^B0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{14},B_8}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{14},B_8}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^B0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{14},I_7}t_{B_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{14},I_7}t_{B_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{10}, I_7, J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{12},B_{10}}t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{10}, I_{10}, J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{12},B_{10}}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{12},B_{10}}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{12},I_{10}}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{12},I_{10}}t_{B_{10},J_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_8, I_8, J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{14},B_8}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{14},B_8}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{14},I_8}t_{B_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{14},I_8}t_{B_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_{10}, I_8, J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{12},B_{10}}t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_9, J_{11})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},B_9}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},B_9}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},I_9}t_{B_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},I_9}t_{B_9,J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_7, I_7, J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},B_7}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},B_7}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},I_7}t_{B_7,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},I_7}t_{B_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_7, J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{12},B_9}t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_{10}, J_{11})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},B_9}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},B_9}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},I_{10}}t_{B_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},I_{10}}t_{B_9,J_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_7, I_8, J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},B_7}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},B_7}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},I_8}t_{B_7,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},I_8}t_{B_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_9, I_8, J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{12},B_9}t_{I_8,J_{13}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{12}, B_{10}, I_9, J_{11})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},B_{10}} t_{I_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},B_{10}} t_{I_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},I_9} t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},I_9} t_{B_{10},J_{11}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{14}, B_8, I_7, J_{13})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},B_8} t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},B_8} t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},I_7} t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},I_7} t_{B_8,J_{13}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{12}, B_{10}, I_7, J_{13})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{12},B_{10}} t_{I_7,J_{13}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{12}, B_{10}, I_{10}, J_{11})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},B_{10}} t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},B_{10}} t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},I_{10}} t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{12},I_{10}} t_{B_{10},J_{11}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_{14}, B_8, I_8, J_{13})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},B_8} t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},B_8} t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},I_8} t_{B_8,J_{13}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^B|\hat{g}|1^I1^J\rangle\langle A_{14}|\hat{0}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{14},I_8}t_{B_8,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{12},B_{10},I_8,J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^B1^J\rangle\langle A_{12}|\hat{0}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{12},B_{10}}t_{I_8,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_9,I_9,J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{11},B_9}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{11},B_9}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{11},I_9}t_{B_9,J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^I0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{11},I_9}t_{B_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{13},B_7,I_7,J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{13},B_7}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^I0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{13},B_7}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{13},I_7}t_{B_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^I0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{13},I_7}t_{B_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_9,I_7,J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{11},B_9}t_{I_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{11},B_9,I_{10},J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{11},B_9}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^I0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{11},B_9}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{11},I_{10}}t_{B_9,J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{11},I_{10}}t_{B_9,J_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{13},B_7,I_8,J_{14})\rangle =$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{13},B_7}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{13},B_7}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{13},I_8}t_{B_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{13},I_8}t_{B_7,J_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},B_9,I_8,J_{14})\rangle =$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{11},B_9}t_{I_8,J_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},B_{10},I_9,J_{12})\rangle =$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{11},B_{10}}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{11},B_{10}}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{11},I_9}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_{11}|\hat{1}_\alpha^+|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{11},I_9}t_{B_{10},J_{12}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{13},B_8,I_7,J_{14})\rangle =$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{13},B_8}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{13},B_8}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{13},I_7}t_{B_8,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_{13}|\hat{1}_\beta^+|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{13},I_7}t_{B_8,J_{14}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{11},B_{10},I_7,J_{14})\rangle =$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{11},B_{10}}t_{I_7,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_{10},I_{10},J_{12})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{11},B_{10}}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{11},B_{10}}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_{10},J_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_8,I_8,J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{13},B_8}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{13},B_8}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{13},I_8}t_{B_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I0^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{13},I_8}t_{B_8,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_{10},I_8,J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{11},B_{10}}t_{I_8,J_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_9,I_9,J_{11})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},B_9}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},B_9}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},I_9}t_{B_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},I_9}t_{B_9,J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_7,I_7,J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},B_7}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},B_7}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},I_7}t_{B_7,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},I_7}t_{B_7,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_9,I_7,J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{11},B_9}t_{I_7,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_9,I_{10},J_{11})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},B_9}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},B_9}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_9,J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_9,J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_7,I_8,J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},B_7}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},B_7}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},I_8}t_{B_7,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},I_8}t_{B_7,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_9,I_8,J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{11},B_9}t_{I_8,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_{10},I_9,J_{11})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},B_{10}}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},B_{10}}t_{I_9,J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},I_9}t_{B_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},I_9}t_{B_{10},J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_8,I_7,J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},B_8}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},B_8}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},I_7}t_{B_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},I_7}t_{B_8,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_{10},I_7,J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{11},B_{10}}t_{I_7,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{11},B_{10},I_{10},J_{11})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},B_{10}}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},B_{10}}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{11},I_{10}}t_{B_{10},J_{11}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{13},B_8,I_8,J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},B_8}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},B_8}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},I_8}t_{B_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_{13}|\hat{1}^+_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{13},I_8}t_{B_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{11}, B_{10}, I_8, J_{13})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_{11}|\hat{1}^+_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{11},B_{10}} t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{12}, B_7, I_9, J_{14})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_{12}|\hat{0}^+_\alpha|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{12},I_9} t_{B_7,J_{14}}$$

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$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^B|\hat{g}|0^I 0^J\rangle \langle A_{13}|\hat{1}_\beta^+|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_7|\hat{0}_\beta^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{13},I_7} t_{B_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_{11}, I_8, J_9)\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^B|\hat{g}|1^I 0^J\rangle \langle A_{13}|\hat{1}_\beta^+|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{13},I_8} t_{B_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_{11}, I_7, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^B|\hat{g}|0^I 1^J\rangle \langle A_{13}|\hat{1}_\beta^+|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_7|\hat{0}_\beta^-|I_0\rangle \langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{13},I_7} t_{B_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{13}, B_{11}, I_8, J_{10})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^B|\hat{g}|1^I 1^J\rangle \langle A_{13}|\hat{1}_\beta^+|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{13},I_8} t_{B_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{12}, I_{12}, J_9)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^B 0^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_9,B_{12}} t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^B|\hat{g}|0^I 0^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_9,B_{12}} t_{I_{12},J_9}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|0^B 0^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{12}} t_{B_{12},J_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 0^B|\hat{g}|0^I 0^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{12}} t_{B_{12},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{14}, I_{14}, J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_7,B_{14}}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_7,B_{14}}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{12}, I_{14}, J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_9,B_{12}}t_{I_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{12}, I_{12}, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,B_{12}}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,B_{12}}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_{12},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{14}, I_{14}, J_8)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,B_{14}}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,B_{14}}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{12}, I_{14}, J_8)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_9,B_{12}}t_{I_{14},J_8}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{10}, B_{12}, I_{12}, J_9) \rangle =$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 0^I | \hat{g} | 0^B 0^J \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle t_{A_{10}, B_{12}} t_{I_{12}, J_9}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^A 0^B | \hat{g} | 0^I 0^J \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle t_{A_{10}, B_{12}} t_{I_{12}, J_9}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^A 0^I | \hat{g} | 0^B 0^J \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle t_{A_{10}, I_{12}} t_{B_{12}, J_9}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 0^B | \hat{g} | 0^I 0^J \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_9 | \hat{0}_\alpha^- | J_0 \rangle t_{A_{10}, I_{12}} t_{B_{12}, J_9}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_{14}, I_{14}, J_7) \rangle =$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 0^I | \hat{g} | 0^B 0^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle B_{14} | \hat{0}_\beta^+ | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_8, B_{14}} t_{I_{14}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^A 0^B | \hat{g} | 0^I 0^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle B_{14} | \hat{0}_\beta^+ | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_8, B_{14}} t_{I_{14}, J_7}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^A 0^I | \hat{g} | 0^B 0^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle B_{14} | \hat{0}_\beta^+ | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_8, I_{14}} t_{B_{14}, J_7}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 0^B | \hat{g} | 0^I 0^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle B_{14} | \hat{0}_\beta^+ | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_8, I_{14}} t_{B_{14}, J_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{10}, B_{12}, I_{14}, J_7) \rangle =$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 0^I | \hat{g} | 0^B 0^J \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_7 | \hat{0}_\beta^- | J_0 \rangle t_{A_{10}, B_{12}} t_{I_{14}, J_7}$$

$$\langle (A_1, B_1) | \hat{H} | (A_{10}, B_{12}, I_{12}, J_{10}) \rangle =$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 0^I | \hat{g} | 0^B 1^J \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle t_{A_{10}, B_{12}} t_{I_{12}, J_{10}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^A 0^B | \hat{g} | 0^I 1^J \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle t_{A_{10}, B_{12}} t_{I_{12}, J_{10}}$$

$$+ \frac{1}{4} \sum_I \sum_J \langle 1^A 0^I | \hat{g} | 0^B 1^J \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle t_{A_{10}, I_{12}} t_{B_{12}, J_{10}}$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 0^B | \hat{g} | 0^I 1^J \rangle \langle A_{10} | \hat{1}_\alpha^- | A_1 \rangle \langle B_{12} | \hat{0}_\alpha^+ | B_1 \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0 \rangle t_{A_{10}, I_{12}} t_{B_{12}, J_{10}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_{14}, I_{14}, J_8) \rangle =$$

$$+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 0^I | \hat{g} | 0^B 1^J \rangle \langle A_8 | \hat{1}_\beta^- | A_1 \rangle \langle B_{14} | \hat{0}_\beta^+ | B_1 \rangle \langle I_{14} | \hat{0}_\beta^+ | I_0 \rangle \langle J_8 | \hat{1}_\beta^- | J_0 \rangle t_{A_8, B_{14}} t_{I_{14}, J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_8,B_{14}}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_8,I_{14}}t_{B_{14},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_8,I_{14}}t_{B_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_{12},I_{14},J_8)\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_8|\hat{1}^-_\beta|J_0\rangle t_{A_{10},B_{12}}t_{I_{14},J_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_{12},I_{11},J_9)\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_9,B_{12}}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_9,B_{12}}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_9,I_{11}}t_{B_{12},J_9}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_9,I_{11}}t_{B_{12},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_{14},I_{13},J_7)\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_7,B_{14}}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_7,B_{14}}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_7,I_{13}}t_{B_{14},J_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_7,I_{13}}t_{B_{14},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_{12},I_{13},J_7)\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_7|\hat{0}^-_\beta|J_0\rangle t_{A_9,B_{12}}t_{I_{13},J_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_{12},I_{11},J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_9,B_{12}}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,B_{12}}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^B1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_{12},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_{12},J_{10}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_{14},I_{13},J_8)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^B1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,B_{14}}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,B_{14}}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^B1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{13}}t_{B_{14},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{13}}t_{B_{14},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_{12},I_{13},J_8)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^B1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_9,B_{12}}t_{I_{13},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_{12},I_{11},J_9)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{10},B_{12}}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{10},B_{12}}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_{12},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^I0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_{12},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_{14},I_{13},J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_8,B_{14}}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^I0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_8,B_{14}}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_{14},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^I0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{12}, I_{13}, J_7)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|0^B 0^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{10},B_{12}} t_{I_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{12}, I_{11}, J_{10})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|0^B 1^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{10},B_{12}} t_{I_{11},J_{10}}$$
$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|1^I 1^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{10},B_{12}} t_{I_{11},J_{10}}$$
$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|0^B 1^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{11}} t_{B_{12},J_{10}}$$
$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|1^I 1^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{11}|\hat{1}_\alpha^+|I_0\rangle \langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{11}} t_{B_{12},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{14}, I_{13}, J_8)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|0^B 1^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_8,B_{14}} t_{I_{13},J_8}$$
$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|1^I 1^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_8,B_{14}} t_{I_{13},J_8}$$
$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|0^B 1^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{13}} t_{B_{14},J_8}$$
$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|1^I 1^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{13}} t_{B_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{12}, I_{13}, J_8)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|0^B 1^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{12}|\hat{0}_\alpha^+|B_1\rangle \langle I_{13}|\hat{1}_\beta^+|I_0\rangle \langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{10},B_{12}} t_{I_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{11}, I_{12}, J_9)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^B 0^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_9,B_{11}} t_{I_{12},J_9}$$
$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|0^I 0^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_9,B_{11}} t_{I_{12},J_9}$$
$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^B 0^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{12}} t_{B_{11},J_9}$$
$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|0^I 0^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{12}} t_{B_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{13}, I_{14}, J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^B0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_7,B_{13}}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_7,B_{13}}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^B0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{11}, I_{14}, J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^B0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_9,B_{11}}t_{I_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{11}, I_{12}, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^B1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,B_{11}}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,B_{11}}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^B1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{12}}t_{B_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{13}, I_{14}, J_8)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^B1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,B_{13}}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,B_{13}}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^B1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_{13},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{14}}t_{B_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{11}, I_{14}, J_8)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^B1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_9,B_{11}}t_{I_{14},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{11}, I_{12}, J_9)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{10},B_{11}}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{10},B_{11}}t_{I_{12},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_{11},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{13}, I_{14}, J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_8,B_{13}}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_8,B_{13}}t_{I_{14},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{11}, I_{14}, J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{10},B_{11}}t_{I_{14},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{11}, I_{12}, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{10},B_{11}}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{10},B_{11}}t_{I_{12},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{12}}t_{B_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{13}, I_{14}, J_8)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_8,B_{13}}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_8,B_{13}}t_{I_{14},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_{13},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{14}}t_{B_{13},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_{11},I_{14},J_8)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{10},B_{11}}t_{I_{14},J_8}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_{11},I_{11},J_9)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^B0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_9,B_{11}}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_9,B_{11}}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^B0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_{11},J_9}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_{11},J_9}$$

$$\langle (A_1,B_1)|\hat{H}|(A_7,B_{13},I_{13},J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^B0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_7,B_{13}}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_7,B_{13}}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^B0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{13}}t_{B_{13},J_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_7,I_{13}}t_{B_{13},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_{11},I_{13},J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^B0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_9,B_{11}}t_{I_{13},J_7}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_{11},I_{11},J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^B1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,B_{11}}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,B_{11}}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_9,I_{11}}t_{B_{11},J_{10}}$$

$\langle(A_1,B_1)|\hat{H}|(A_7,B_{13},I_{13},J_8)\rangle =$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,B_{13}}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,B_{13}}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{13}}t_{B_{13},J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_7,I_{13}}t_{B_{13},J_8}$$

$\langle(A_1,B_1)|\hat{H}|(A_9,B_{11},I_{13},J_8)\rangle =$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_9,B_{11}}t_{I_{13},J_8}$$

$\langle(A_1,B_1)|\hat{H}|(A_{10},B_{11},I_{11},J_9)\rangle =$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{10},B_{11}}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{10},B_{11}}t_{I_{11},J_9}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_{11},J_9}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_{11},J_9}$$

$\langle(A_1,B_1)|\hat{H}|(A_8,B_{13},I_{13},J_7)\rangle =$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_8,B_{13}}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_8,B_{13}}t_{I_{13},J_7}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_{13},J_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{11}, I_{13}, J_7)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_7|\hat{0}_\beta^-|J_0\rangle t_{A_{10},B_{11}}t_{I_{13},J_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{11}, I_{11}, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{10},B_{11}}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{10},B_{11}}t_{I_{11},J_{10}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_{11},J_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_{10},I_{11}}t_{B_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{13}, I_{13}, J_8)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_8,B_{13}}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_8,B_{13}}t_{I_{13},J_8}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_{13},J_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_8,I_{13}}t_{B_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{11}, I_{13}, J_8)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_8|\hat{1}_\beta^-|J_0\rangle t_{A_{10},B_{11}}t_{I_{13},J_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{12}, I_{14}, J_9)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_7,I_{14}}t_{B_{12},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{12}, I_{14}, J_9)\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_8,I_{14}}t_{B_{12},J_9}$$

$$\langle(A_1, B_1)|\hat{H}|(A_7, B_{12}, I_{14}, J_{10})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_7,I_{14}}t_{B_{12},J_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_8, B_{12}, I_{14}, J_{10})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_8,I_{14}}t_{B_{12},J_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_7, B_{12}, I_{13}, J_9)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_7,I_{13}}t_{B_{12},J_9}$$

$$\langle(A_1, B_1)|\hat{H}|(A_8, B_{12}, I_{13}, J_9)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_8,I_{13}}t_{B_{12},J_9}$$

$$\langle(A_1, B_1)|\hat{H}|(A_7, B_{12}, I_{13}, J_{10})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_7,I_{13}}t_{B_{12},J_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_8, B_{12}, I_{13}, J_{10})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_8,I_{13}}t_{B_{12},J_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_7, B_{11}, I_{14}, J_9)\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_7,I_{14}}t_{B_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{11}, I_{14}, J_9)\rangle =$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_8,I_{14}} t_{B_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{11}, I_{14}, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_7,I_{14}} t_{B_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{11}, I_{14}, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|0^I 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_8,I_{14}} t_{B_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{11}, I_{13}, J_9)\rangle =$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_7,I_{13}} t_{B_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{11}, I_{13}, J_9)\rangle =$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_8,I_{13}} t_{B_{11},J_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{11}, I_{13}, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_7,I_{13}} t_{B_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{11}, I_{13}, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_8,I_{13}} t_{B_{11},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{12}, I_9, J_{12})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^B0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,B_{12}}t_{I_9,J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^B|\hat{g}|0^J0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,B_{12}}t_{I_9,J_{12}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^B0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_{12},I_9}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^B|\hat{g}|0^J0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_{12},I_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_{14},I_7,J_{14})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^B0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,B_{14}}t_{I_7,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^B|\hat{g}|0^J0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,B_{14}}t_{I_7,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^B0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_{14},I_7}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^B|\hat{g}|0^J0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_{14},I_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_{12},I_7,J_{14})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^B0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_9,B_{12}}t_{I_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_{12},I_{10},J_{12})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^B0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,B_{12}}t_{I_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^B|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,B_{12}}t_{I_{10},J_{12}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^B0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_{12},I_{10}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^B|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_{12},I_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_{14},I_8,J_{14})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^B0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,B_{14}}t_{I_8,J_{14}}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^B|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,B_{14}}t_{I_8,J_{14}}$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^B0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_{14},I_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^B|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_{14},I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{12}, I_8, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_9,B_{12}} t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{12}, I_9, J_{12})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},B_{12}} t_{I_9,J_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},B_{12}} t_{I_9,J_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}} t_{B_{12},I_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}} t_{B_{12},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{14}, I_7, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,B_{14}} t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,B_{14}} t_{I_7,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}} t_{B_{14},I_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}} t_{B_{14},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{12}, I_7, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 0^I|\hat{g}|0^B 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{10},B_{12}} t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{12}, I_{10}, J_{12})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},B_{12}} t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},B_{12}} t_{I_{10},J_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}} t_{B_{12},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}} t_{B_{12},I_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{14}, I_8, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,B_{14}}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,B_{14}}t_{I_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_{14},I_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_{14},I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{12}, I_8, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{10},B_{12}}t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{12}, I_9, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,B_{12}}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,B_{12}}t_{I_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}}t_{B_{12},I_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}}t_{B_{12},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{14}, I_7, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,B_{14}}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,B_{14}}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,J_{13}}t_{B_{14},I_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,J_{13}}t_{B_{14},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{12}, I_7, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_9,B_{12}}t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{12}, I_{10}, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^B1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,B_{12}}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,B_{12}}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^B1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}}t_{B_{12},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^J1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}}t_{B_{12},I_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{14}, I_8, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^B1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,B_{14}}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,B_{14}}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^B1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_{14},I_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^J1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_{14},I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{12}, I_8, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|0^B1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_9,B_{12}}t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{12}, I_9, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},B_{12}}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},B_{12}}t_{I_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_{12},I_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_{12},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{14}, I_7, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,B_{14}}t_{I_7,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,B_{14}}t_{I_7,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}}t_{B_{14},I_7}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}}t_{B_{14},I_7}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_{12},I_7,J_{13})\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{10},B_{12}}t_{I_7,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_{12},I_{10},J_{11})\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},B_{12}}t_{I_{10},J_{11}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},B_{12}}t_{I_{10},J_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_{12},I_{10}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_{12},I_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_{14},I_8,J_{13})\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,B_{14}}t_{I_8,J_{13}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,B_{14}}t_{I_8,J_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}}t_{B_{14},I_8}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}}t_{B_{14},I_8}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_{12},I_8,J_{13})\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{10},B_{12}}t_{I_8,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_{11},I_9,J_{12})\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^I|\hat{g}|1^B0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,B_{11}}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|0^J 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,B_{11}} t_{I_9,J_{12}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}} t_{B_{11},I_9}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|0^J 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}} t_{B_{11},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{13}, I_7, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,B_{13}} t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|0^J 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,B_{13}} t_{I_7,J_{14}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}} t_{B_{13},I_7}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|0^J 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}} t_{B_{13},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{11}, I_7, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_9,B_{11}} t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{11}, I_{10}, J_{12})\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,B_{11}} t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,B_{11}} t_{I_{10},J_{12}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}} t_{B_{11},I_{10}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}} t_{B_{11},I_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{13}, I_8, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,B_{13}} t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,B_{13}} t_{I_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}} t_{B_{13},I_8}$$

$$+\tfrac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}} t_{B_{13},I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{11}, I_8, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^I|\hat{g}|1^B0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_8|\hat{1}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_9,B_{11}}t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{11}, I_9, J_{12})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},B_{11}}t_{I_9,J_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^J0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},B_{11}}t_{I_9,J_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^-|J_0\rangle t_{A_{10},J_{12}}t_{B_{11},I_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^J0^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^-|J_0\rangle t_{A_{10},J_{12}}t_{B_{11},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{13}, I_7, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,B_{13}}t_{I_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^J0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,B_{13}}t_{I_7,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}}t_{B_{13},I_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^J0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}}t_{B_{13},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{11}, I_7, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{10},B_{11}}t_{I_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{11}, I_{10}, J_{12})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},B_{11}}t_{I_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},B_{11}}t_{I_{10},J_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}}t_{B_{11},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^J1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}}t_{B_{11},I_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{13}, I_8, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,B_{13}}t_{I_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,B_{13}}t_{I_8,J_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_{13},I_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_{13},I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{11}, I_8, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{10},B_{11}}t_{I_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{11}, I_9, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,B_{11}}t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,B_{11}}t_{I_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}}t_{B_{11},I_9}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}}t_{B_{11},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{13}, I_7, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,B_{13}}t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,B_{13}}t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,J_{13}}t_{B_{13},I_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,J_{13}}t_{B_{13},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{11}, I_7, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_9,B_{11}}t_{I_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{11}, I_{10}, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 1^I|\hat{g}|1^B 1^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,B_{11}} t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|1^J 1^I\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,B_{11}} t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 1^I|\hat{g}|1^B 1^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}} t_{B_{11},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|1^J 1^I\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_{10}|\hat{1}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}} t_{B_{11},I_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{13}, I_8, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 1^I|\hat{g}|1^B 1^J\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,B_{13}} t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|1^J 1^I\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,B_{13}} t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 1^I|\hat{g}|1^B 1^J\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}} t_{B_{13},I_8}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|1^J 1^I\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}} t_{B_{13},I_8}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{11}, I_8, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 1^I|\hat{g}|1^B 1^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_9,B_{11}} t_{I_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{11}, I_9, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^B 1^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_9|\hat{0}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},B_{11}} t_{I_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|1^J 0^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_9|\hat{0}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},B_{11}} t_{I_9,J_{11}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^B 1^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_9|\hat{0}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}} t_{B_{11},I_9}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|1^J 0^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{11}|\hat{1}_\alpha^+|B_1\rangle \langle I_9|\hat{0}_\alpha^-|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}} t_{B_{11},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{13}, I_7, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^I|\hat{g}|1^B 1^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_7|\hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,B_{13}} t_{I_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|1^J 0^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{13}|\hat{1}_\beta^+|B_1\rangle \langle I_7|\hat{0}_\beta^-|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,B_{13}} t_{I_7,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,J_{13}}t_{B_{13},I_7}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J0^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,J_{13}}t_{B_{13},I_7}$$

$\langle(A_1,B_1)|\hat{H}|(A_{10},B_{11},I_7,J_{13})\rangle =$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_7|\hat{0}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{10},B_{11}}t_{I_7,J_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_{10},B_{11},I_{10},J_{11})\rangle =$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{10},B_{11}}t_{I_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{10},B_{11}}t_{I_{10},J_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{10},J_{11}}t_{B_{11},I_{10}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{10},J_{11}}t_{B_{11},I_{10}}$$

$\langle(A_1,B_1)|\hat{H}|(A_8,B_{13},I_8,J_{13})\rangle =$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,B_{13}}t_{I_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,B_{13}}t_{I_8,J_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,J_{13}}t_{B_{13},I_8}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,J_{13}}t_{B_{13},I_8}$$

$\langle(A_1,B_1)|\hat{H}|(A_{10},B_{11},I_8,J_{13})\rangle =$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^I|\hat{g}|1^B1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{11}|\hat{1}^+_\alpha|B_1\rangle\langle I_8|\hat{1}^-_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{10},B_{11}}t_{I_8,J_{13}}$$

$\langle(A_1,B_1)|\hat{H}|(A_7,B_{12},I_9,J_{14})\rangle =$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J0^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{12}|\hat{0}^+_\alpha|B_1\rangle\langle I_9|\hat{0}^-_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_7,J_{14}}t_{B_{12},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{12}, I_9, J_{14})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}} t_{B_{12},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{12}, I_{10}, J_{14})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}} t_{B_{12},I_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{12}, I_{10}, J_{14})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^J 1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}} t_{B_{12},I_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{12}, I_9, J_{13})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}} t_{B_{12},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{12}, I_9, J_{13})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_{12},I_9}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{12}, I_{10}, J_{13})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}} t_{B_{12},I_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{12}, I_{10}, J_{13})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{12}|\hat{0}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_{12},I_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_7, B_{11}, I_9, J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^J 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}} t_{B_{11},I_9}$$

$$\langle(A_1, B_1)|\hat{H}|(A_8, B_{11}, I_9, J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^J 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}} t_{B_{11},I_9}$$

$$\langle(A_1, B_1)|\hat{H}|(A_7, B_{11}, I_{10}, J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}} t_{B_{11},I_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_8, B_{11}, I_{10}, J_{14})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}} t_{B_{11},I_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_7, B_{11}, I_9, J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}} t_{B_{11},I_9}$$

$$\langle(A_1, B_1)|\hat{H}|(A_8, B_{11}, I_9, J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^J 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}} t_{B_{11},I_9}$$

$$\langle(A_1, B_1)|\hat{H}|(A_7, B_{11}, I_{10}, J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^J 1^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}} t_{B_{11},I_{10}}$$

$$\langle(A_1, B_1)|\hat{H}|(A_8, B_{11}, I_{10}, J_{13})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|1^J 1^I\rangle\langle A_8|\hat{1}_{\bar{\beta}}^-|A_1\rangle\langle B_{11}|\hat{1}_\alpha^+|B_1\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_{13}|\hat{1}_{\bar{\beta}}^+|J_0\rangle t_{A_8,J_{13}}t_{B_{11},I_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_9,I_{12},J_7)\rangle =$$
$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_{14}|\hat{0}_{\bar{\beta}}^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_7|\hat{0}_{\bar{\beta}}^-|J_0\rangle t_{A_{14},J_7}t_{B_9,I_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{14},B_9,I_{12},J_8)\rangle =$$
$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_{14}|\hat{0}_{\bar{\beta}}^+|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_8|\hat{1}_{\bar{\beta}}^-|J_0\rangle t_{A_{14},J_8}t_{B_9,I_{12}}$$

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$\langle (A_1, B_1)|\hat{H}|(A_7, B_{14}, I_{12}, J_9)\rangle =$

$+\frac{-1}{4} \sum_I \sum_J \langle 0^A 0^I|\hat{g}|0^B 0^J\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_7,B_{14}} t_{I_{12},J_9}$

$\langle (A_1, B_1)|\hat{H}|(A_8, B_{14}, I_{12}, J_9)\rangle =$

$+\frac{-1}{4} \sum_I \sum_J \langle 1^A 0^I|\hat{g}|0^B 0^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_{14}|\hat{0}_\beta^+|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_8,B_{14}} t_{I_{12},J_9}$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{14}, I_{12}, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_7,B_{14}}t_{I_{12},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{14}, I_{12}, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|0^B 1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_8,B_{14}}t_{I_{12},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{13}, I_{12}, J_{9})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_7,B_{13}}t_{I_{12},J_{9}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{13}, I_{12}, J_{9})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^B 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_8,B_{13}}t_{I_{12},J_{9}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{13}, I_{12}, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_7,B_{13}}t_{I_{12},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{13}, I_{12}, J_{10})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A 0^I|\hat{g}|1^B 1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_{13}|\hat{1}_\beta^+|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle t_{A_8,B_{13}}t_{I_{12},J_{10}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_{14}, I_{11}, J_{9})\rangle =$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_9|\hat{0}_\alpha^-|J_0\rangle t_{A_7,B_{14}}t_{I_{11},J_{9}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_{14}, I_{11}, J_{9})\rangle =$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_8,B_{14}}t_{I_{11},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_{14},I_{11},J_{10})\rangle =$$
$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_7,B_{14}}t_{I_{11},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_{14},I_{11},J_{10})\rangle =$$
$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{14}|\hat{0}^+_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_8,B_{14}}t_{I_{11},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_{13},I_{11},J_9)\rangle =$$
$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_7,B_{13}}t_{I_{11},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_{13},I_{11},J_9)\rangle =$$
$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_9|\hat{0}^-_\alpha|J_0\rangle t_{A_8,B_{13}}t_{I_{11},J_9}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_{13},I_{11},J_{10})\rangle =$$
$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_7,B_{13}}t_{I_{11},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_{13},I_{11},J_{10})\rangle =$$
$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_{13}|\hat{1}^+_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{10}|\hat{1}^-_\alpha|J_0\rangle t_{A_8,B_{13}}t_{I_{11},J_{10}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_9,I_{12},J_{12})\rangle =$$
$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,I_{12}}t_{B_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,I_{12}}t_{B_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_9,I_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_9,I_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_7,I_{14},J_{14})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,I_{14}}t_{B_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,I_{14}}t_{B_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_7,I_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_7,I_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_7,I_{12},J_{14})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_9,I_{12}}t_{B_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_{10},I_{12},J_{12})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,I_{12}}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,I_{12}}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_{10},I_{12}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{B_{10},I_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_8,I_{14},J_{14})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,I_{14}}t_{B_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,I_{14}}t_{B_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_8,I_{14}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_8,I_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_8, I_{12}, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|0^I 0^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_9,I_{12}} t_{B_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_9, I_{12}, J_{12})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^I 0^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},I_{12}} t_{B_9,J_{12}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^J 0^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},I_{12}} t_{B_9,J_{12}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^I 0^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},I_{12}} t_{B_9,I_{12}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^J 0^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},I_{12}} t_{B_9,I_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_7, I_{14}, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^I 0^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,I_{14}} t_{B_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^J 0^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,I_{14}} t_{B_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^I 0^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}} t_{B_7,I_{14}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^J 0^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}} t_{B_7,I_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_7, I_{12}, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^I 0^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{10},I_{12}} t_{B_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{10}, I_{12}, J_{12})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|0^I 0^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},I_{12}} t_{B_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|0^J 0^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},I_{12}} t_{B_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|0^I 0^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}} t_{B_{10},I_{12}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|0^J 0^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{10},J_{12}} t_{B_{10},I_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_8, I_{14}, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,I_{14}}t_{B_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^J 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,I_{14}}t_{B_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}}t_{B_8,I_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^J 0^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_8,J_{14}}t_{B_8,I_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_8, I_{12}, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_{10},I_{12}}t_{B_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_9, I_{12}, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,I_{12}}t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,I_{12}}t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}}t_{B_9,I_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}}t_{B_9,I_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_7, I_{14}, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,I_{14}}t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,I_{14}}t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_7,I_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|1^J 0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}}t_{B_7,I_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_7, I_{12}, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^I 1^J\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_9,I_{12}}t_{B_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{10}, I_{12}, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|0^I 1^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,I_{12}} t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|1^J 0^I\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,I_{12}} t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|0^I 1^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}} t_{B_{10},I_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|1^J 0^I\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_{10}|\hat{1}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_9,J_{11}} t_{B_{10},I_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_8, I_{14}, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|0^I 1^J\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,I_{14}} t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|1^J 0^I\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,I_{14}} t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|0^I 1^J\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}} t_{B_8,I_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|1^J 0^I\rangle \langle A_7|\hat{0}_\beta^-|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_7,J_{13}} t_{B_8,I_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_8, I_{12}, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 0^A 1^B|\hat{g}|0^I 1^J\rangle \langle A_9|\hat{0}_\alpha^-|A_1\rangle \langle B_8|\hat{1}_\beta^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_9,I_{12}} t_{B_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_9, I_{12}, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|0^I 1^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},I_{12}} t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|1^J 0^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},I_{12}} t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|0^I 1^J\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}} t_{B_9,I_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|1^J 0^I\rangle \langle A_{10}|\hat{1}_\alpha^-|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_{12}|\hat{0}_\alpha^+|I_0\rangle \langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}} t_{B_9,I_{12}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_7, I_{14}, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|0^I 1^J\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,I_{14}} t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J \langle 1^A 0^B|\hat{g}|1^J 0^I\rangle \langle A_8|\hat{1}_\beta^-|A_1\rangle \langle B_7|\hat{0}_\beta^-|B_1\rangle \langle I_{14}|\hat{0}_\beta^+|I_0\rangle \langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,I_{14}} t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,J_{13}}t_{B_7,I_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J0^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,J_{13}}t_{B_7,I_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_7,I_{12},J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{10},I_{12}}t_{B_7,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_{10},I_{12},J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{10},I_{12}}t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J0^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{10},I_{12}}t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{10},J_{11}}t_{B_{10},I_{12}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J0^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{10},J_{11}}t_{B_{10},I_{12}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_8,B_8,I_{14},J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,I_{14}}t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J0^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,I_{14}}t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^I1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,J_{13}}t_{B_8,I_{14}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J0^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{14}|\hat{0}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,J_{13}}t_{B_8,I_{14}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_{10},B_8,I_{12},J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|0^I1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{12}|\hat{0}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_{10},I_{12}}t_{B_8,J_{13}}$$

$$\langle (A_1,B_1)|\hat{H}|(A_9,B_9,I_{11},J_{12})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,I_{11}}t_{B_9,J_{12}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,I_{11}}t_{B_9,J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,J_{12}}t_{B_9,I_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,J_{12}}t_{B_9,I_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_7,I_{13},J_{14})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_7,I_{13}}t_{B_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_7,I_{13}}t_{B_7,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_7,J_{14}}t_{B_7,I_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_7,J_{14}}t_{B_7,I_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_7,I_{11},J_{14})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_9,I_{11}}t_{B_7,J_{14}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_9,B_{10},I_{11},J_{12})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,I_{11}}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,I_{11}}t_{B_{10},J_{12}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I0^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,J_{12}}t_{B_{10},I_{11}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_9,J_{12}}t_{B_{10},I_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_8,I_{13},J_{14})\rangle =$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_7,I_{13}}t_{B_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_7,I_{13}}t_{B_8,J_{14}}$$

$$+\frac{-1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|1^I0^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_7,J_{14}}t_{B_8,I_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_7,J_{14}}t_{B_8,I_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_8, I_{11}, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 1^B|\hat{g}|1^I 0^J\rangle \langle A_9|\hat{0}^-_\alpha|A_1\rangle \langle B_8|\hat{1}^-_\beta|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_9,I_{11}} t_{B_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_9, I_{11}, J_{12})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|1^I 0^J\rangle \langle A_{10}|\hat{1}^-_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},I_{11}} t_{B_9,J_{12}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^J 1^I\rangle \langle A_{10}|\hat{1}^-_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},I_{11}} t_{B_9,J_{12}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|1^I 0^J\rangle \langle A_{10}|\hat{1}^-_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},J_{12}} t_{B_9,I_{11}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^J 1^I\rangle \langle A_{10}|\hat{1}^-_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},J_{12}} t_{B_9,I_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_7, I_{13}, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|1^I 0^J\rangle \langle A_8|\hat{1}^-_\beta|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,I_{13}} t_{B_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^J 1^I\rangle \langle A_8|\hat{1}^-_\beta|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,I_{13}} t_{B_7,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|1^I 0^J\rangle \langle A_8|\hat{1}^-_\beta|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}} t_{B_7,I_{13}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|0^J 1^I\rangle \langle A_8|\hat{1}^-_\beta|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}} t_{B_7,I_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_7, I_{11}, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 0^B|\hat{g}|1^I 0^J\rangle \langle A_{10}|\hat{1}^-_\alpha|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{10},I_{11}} t_{B_7,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{10}, I_{11}, J_{12})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|1^I 0^J\rangle \langle A_{10}|\hat{1}^-_\alpha|A_1\rangle \langle B_{10}|\hat{1}^-_\alpha|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},I_{11}} t_{B_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|0^J 1^I\rangle \langle A_{10}|\hat{1}^-_\alpha|A_1\rangle \langle B_{10}|\hat{1}^-_\alpha|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},I_{11}} t_{B_{10},J_{12}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|1^I 0^J\rangle \langle A_{10}|\hat{1}^-_\alpha|A_1\rangle \langle B_{10}|\hat{1}^-_\alpha|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},J_{12}} t_{B_{10},I_{11}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|0^J 1^I\rangle \langle A_{10}|\hat{1}^-_\alpha|A_1\rangle \langle B_{10}|\hat{1}^-_\alpha|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{12}|\hat{0}^+_\alpha|J_0\rangle t_{A_{10},J_{12}} t_{B_{10},I_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_8, I_{13}, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|1^I 0^J\rangle \langle A_8|\hat{1}^-_\beta|A_1\rangle \langle B_8|\hat{1}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,I_{13}} t_{B_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|0^J 1^I\rangle \langle A_8|\hat{1}^-_\beta|A_1\rangle \langle B_8|\hat{1}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,I_{13}} t_{B_8,J_{14}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|1^I 0^J\rangle \langle A_8|\hat{1}^-_\beta|A_1\rangle \langle B_8|\hat{1}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}} t_{B_8,I_{13}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|0^J 1^I\rangle \langle A_8|\hat{1}^-_\beta|A_1\rangle \langle B_8|\hat{1}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}} t_{B_8,I_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_8, I_{11}, J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 1^A 1^B|\hat{g}|1^I 0^J\rangle \langle A_{10}|\hat{1}^-_\alpha|A_1\rangle \langle B_8|\hat{1}^-_\beta|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_{10},I_{11}} t_{B_8,J_{14}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_9, I_{11}, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^B|\hat{g}|1^I 1^J\rangle \langle A_9|\hat{0}^-_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,I_{11}} t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^A 0^B|\hat{g}|1^J 1^I\rangle \langle A_9|\hat{0}^-_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,I_{11}} t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^A 0^B|\hat{g}|1^I 1^J\rangle \langle A_9|\hat{0}^-_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}} t_{B_9,I_{11}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^B|\hat{g}|1^J 1^I\rangle \langle A_9|\hat{0}^-_\alpha|A_1\rangle \langle B_9|\hat{0}^-_\alpha|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}} t_{B_9,I_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_7, I_{13}, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^B|\hat{g}|1^I 1^J\rangle \langle A_7|\hat{0}^-_\beta|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,I_{13}} t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^A 0^B|\hat{g}|1^J 1^I\rangle \langle A_7|\hat{0}^-_\beta|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,I_{13}} t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I \sum_J \langle 0^A 0^B|\hat{g}|1^I 1^J\rangle \langle A_7|\hat{0}^-_\beta|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,J_{13}} t_{B_7,I_{13}}$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^B|\hat{g}|1^J 1^I\rangle \langle A_7|\hat{0}^-_\beta|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{13}|\hat{1}^+_\beta|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,J_{13}} t_{B_7,I_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_7, I_{11}, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I \sum_J \langle 0^A 0^B|\hat{g}|1^I 1^J\rangle \langle A_9|\hat{0}^-_\alpha|A_1\rangle \langle B_7|\hat{0}^-_\beta|B_1\rangle \langle I_{11}|\hat{1}^+_\alpha|I_0\rangle \langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_9,I_{11}} t_{B_7,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{10}, I_{11}, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,I_{11}} t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,I_{11}} t_{B_{10},J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}} t_{B_{10},I_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^J 1^I\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_9,J_{11}} t_{B_{10},I_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_7, B_8, I_{13}, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,I_{13}} t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^J 1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,I_{13}} t_{B_8,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,J_{13}} t_{B_8,I_{13}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^J 1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_7,J_{13}} t_{B_8,I_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_8, I_{11}, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_9|\hat{0}^-_\alpha|A_1\rangle\langle B_8|\hat{1}^-_\beta|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_9,I_{11}} t_{B_8,J_{13}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_9, I_{11}, J_{11})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{10},I_{11}} t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{10},I_{11}} t_{B_9,J_{11}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{10},J_{11}} t_{B_9,I_{11}}$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_{10}|\hat{1}^-_\alpha|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{11}|\hat{1}^+_\alpha|J_0\rangle t_{A_{10},J_{11}} t_{B_9,I_{11}}$$

$$\langle (A_1, B_1)|\hat{H}|(A_8, B_7, I_{13}, J_{13})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,I_{13}} t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,I_{13}} t_{B_7,J_{13}}$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|1^I 1^J\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_7|\hat{0}^-_\beta|B_1\rangle\langle I_{13}|\hat{1}^+_\beta|I_0\rangle\langle J_{13}|\hat{1}^+_\beta|J_0\rangle t_{A_8,J_{13}} t_{B_7,I_{13}}$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^J1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}}t_{B_7,I_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_7,I_{11},J_{13})\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_7|\hat{0}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{10},I_{11}}t_{B_7,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_{10},I_{11},J_{11})\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},I_{11}}t_{B_{10},J_{11}}$$
$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},I_{11}}t_{B_{10},J_{11}}$$
$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_{10},I_{11}}$$
$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J1^I\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{A_{10},J_{11}}t_{B_{10},I_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_8,I_{13},J_{13})\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,I_{13}}t_{B_8,J_{13}}$$
$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,I_{13}}t_{B_8,J_{13}}$$
$$+\frac{-1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}}t_{B_8,I_{13}}$$
$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^J1^I\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{13}|\hat{1}_\beta^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_8,J_{13}}t_{B_8,I_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_{10},B_8,I_{11},J_{13})\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_{10}|\hat{1}_\alpha^-|A_1\rangle\langle B_8|\hat{1}_\beta^-|B_1\rangle\langle I_{11}|\hat{1}_\alpha^+|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_{10},I_{11}}t_{B_8,J_{13}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_9,I_{12},J_{14})\rangle=$$

$$+\frac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J0^I\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{14}|\hat{0}_\beta^+|J_0\rangle t_{A_7,J_{14}}t_{B_9,I_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_9, I_{12}, J_{14}) \rangle =$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 1^A 0^B | \hat{g} | 0^J 0^I \rangle \langle A_8 | \hat{1}^-_\beta | A_1 \rangle \langle B_9 | \hat{0}^-_\alpha | B_1 \rangle \langle I_{12} | \hat{0}^+_\alpha | I_0 \rangle \langle J_{14} | \hat{0}^+_\beta | J_0 \rangle t_{A_8, J_{14}} t_{B_9, I_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_{10}, I_{12}, J_{14}) \rangle =$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^A 1^B | \hat{g} | 0^J 0^I \rangle \langle A_7 | \hat{0}^-_\beta | A_1 \rangle \langle B_{10} | \hat{1}^-_\alpha | B_1 \rangle \langle I_{12} | \hat{0}^+_\alpha | I_0 \rangle \langle J_{14} | \hat{0}^+_\beta | J_0 \rangle t_{A_7, J_{14}} t_{B_{10}, I_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_8, B_{10}, I_{12}, J_{14}) \rangle =$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 1^A 1^B | \hat{g} | 0^J 0^I \rangle \langle A_8 | \hat{1}^-_\beta | A_1 \rangle \langle B_{10} | \hat{1}^-_\alpha | B_1 \rangle \langle I_{12} | \hat{0}^+_\alpha | I_0 \rangle \langle J_{14} | \hat{0}^+_\beta | J_0 \rangle t_{A_8, J_{14}} t_{B_{10}, I_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_9, I_{12}, J_{13}) \rangle =$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^A 0^B | \hat{g} | 1^J 0^I \rangle \langle A_7 | \hat{0}^-_\beta | A_1 \rangle \langle B_9 | \hat{0}^-_\alpha | B_1 \rangle \langle I_{12} | \hat{0}^+_\alpha | I_0 \rangle \langle J_{13} | \hat{1}^+_\beta | J_0 \rangle t_{A_7, J_{13}} t_{B_9, I_{12}}$$

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$$\langle (A_1, B_1) | \hat{H} | (A_7, B_9, I_{11}, J_{14}) \rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A0^B|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_7,J_{14}}t_{B_9,I_{11}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_8,B_9,I_{11},J_{14})\rangle =$$

$$+\tfrac{1}{4}\sum_I\sum_J\langle 1^A0^B|\hat{g}|0^J1^I\rangle\langle A_8|\hat{1}^-_\beta|A_1\rangle\langle B_9|\hat{0}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_8,J_{14}}t_{B_9,I_{11}}$$

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$$+\tfrac{1}{4}\sum_I\sum_J\langle 0^A1^B|\hat{g}|0^J1^I\rangle\langle A_7|\hat{0}^-_\beta|A_1\rangle\langle B_{10}|\hat{1}^-_\alpha|B_1\rangle\langle I_{11}|\hat{1}^+_\alpha|I_0\rangle\langle J_{14}|\hat{0}^+_\beta|J_0\rangle t_{A_7,J_{14}}t_{B_{10},I_{11}}$$

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$$\langle (A_1, B_1)|\hat{H}|(A_{14}, B_9, I_8, J_{12})\rangle =$$

$$+\frac{-1}{4} \sum_I \sum_J \langle 0^A 0^B |\hat{g}| 1^I 0^J \rangle \langle A_{14}|\hat{0}_\beta^+|A_1\rangle \langle B_9|\hat{0}_\alpha^-|B_1\rangle \langle I_8|\hat{1}_\beta^-|I_0\rangle \langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_{14},I_8} t_{B_9,J_{12}}$$

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$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{14}, I_7, J_{12})\rangle =$$

$$+\tfrac{-1}{4}\sum_I\sum_J\langle 0^A 0^B|\hat{g}|0^J 0^I\rangle\langle A_9|\hat{0}_\alpha^-|A_1\rangle\langle B_{14}|\hat{0}_\beta^+|B_1\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}} t_{B_{14},I_7}$$

$$\langle (A_1, B_1)|\hat{H}|(A_9, B_{14}, I_8, J_{12})\rangle =$$

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$$\langle (A_1, B_1)|\hat{H}|(A_{10}, B_{14}, I_7, J_{12})\rangle =$$

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$$+\frac{1}{4}\sum_I\sum_J\langle 1^A 0^B|\hat{g}|0^I 0^J\rangle\langle A_8|\hat{1}_\beta^-|A_1\rangle\langle B_9|\hat{0}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_8,I_{14}}t_{B_9,J_{12}}$$

$$\langle(A_1,B_1)|\hat{H}|(A_7,B_{10},I_{14},J_{12})\rangle =$$
$$+\frac{1}{4}\sum_I\sum_J\langle 0^A 1^B|\hat{g}|0^I 0^J\rangle\langle A_7|\hat{0}_\beta^-|A_1\rangle\langle B_{10}|\hat{1}_\alpha^-|B_1\rangle\langle I_{14}|\hat{0}_\beta^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_7,I_{14}}t_{B_{10},J_{12}}$$

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$$\langle (A_1, B_1) | \hat{H} | (A_8, B_{10}, I_{13}, J_{12}) \rangle =$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 1^{A} 1^{B} | \hat{g} | 1^{I} 0^{J} \rangle \langle A_8 | \hat{1}_{\beta}^{-} | A_1 \rangle \langle B_{10} | \hat{1}_{\alpha}^{-} | B_1 \rangle \langle I_{13} | \hat{1}_{\beta}^{+} | I_0 \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_0 \rangle t_{A_8, I_{13}} t_{B_{10}, J_{12}}$$

$$\langle (A_1, B_1) | \hat{H} | (A_7, B_9, I_{14}, J_{11}) \rangle =$$

$$+ \tfrac{1}{4} \sum_I \sum_J \langle 0^{A} 0^{B} | \hat{g} | 0^{I} 1^{J} \rangle \langle A_7 | \hat{0}_{\beta}^{-} | A_1 \rangle \langle B_9 | \hat{0}_{\alpha}^{-} | B_1 \rangle \langle I_{14} | \hat{0}_{\beta}^{+} | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_0 \rangle t_{A_7, I_{14}} t_{B_9, J_{11}}$$

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