Hamiltonian matrix in GVB-BCCC formula derivation

Qingchun Wang April 7, 2020

Nanjing Univ qingchun720@foxmail.com

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|()\rangle = \\ &+ \frac{-1}{2}\langle 0^A|\hat{h}|1^B\rangle\langle A_0|\hat{0}_\alpha^+|A_9\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle \\ &+ \frac{-1}{2}\langle 0^A0^A|\hat{g}|1^B0^A\rangle\langle A_0|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle \\ &+ \frac{-1}{2}\langle 1^A1^A|\hat{g}|1^B0^A\rangle\langle A_0|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle \\ &+ \frac{-1}{4}\langle 0^A0^B|\hat{g}|0^B1^B\rangle\langle A_0|\hat{0}_\alpha^+|A_9\rangle\langle B_0|\hat{0}_\alpha^+\hat{1}_\alpha^-\hat{0}_\alpha^-|B_{11}\rangle \\ &+ \frac{-1}{4}\langle 0^A0^B|\hat{g}|1^B0^B\rangle\langle A_0|\hat{0}_\alpha^+|A_9\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\rangle \\ &+ \frac{-1}{4}\langle 0^A0^B|\hat{g}|1^B0^B\rangle\langle A_0|\hat{0}_\alpha^+|A_9\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\rangle \\ &+ \frac{-1}{2}\langle 0^A0^B|\hat{g}|1^B0^B\rangle\langle A_0|\hat{0}_\alpha^+|A_9\rangle\langle B_0|\hat{0}_\beta^+\hat{0}_\beta^-\hat{1}_\alpha^-|B_{11}\rangle \\ &+ \frac{-1}{2}\langle 0^A0^B|\hat{g}|1^B0^B\rangle\langle A_0|\hat{0}_\alpha^+|A_9\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-\hat{0}_\alpha^-|B_{11}\rangle \\ &+ \frac{1}{4}\langle 0^B0^A|\hat{g}|0^B1^B\rangle\langle A_0|\hat{0}_\alpha^+|A_9\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\rangle \\ &+ \frac{1}{4}\langle 0^B0^A|\hat{g}|1^B0^B\rangle\langle A_0|\hat{0}_\alpha^+|A_9\rangle\langle B_0|\hat{0}_\alpha^+\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\rangle \\ &+ \frac{1}{4}\sum_I\langle 0^A0^I|\hat{g}|1^B0^I\rangle\langle A_0|\hat{0}_\alpha^+|A_9\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle \\ &+ \frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B1^B1^I\rangle\langle A_0|\hat{0}_\alpha^+|A_9\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle \\ &+ \frac{1}{4}\sum_I\langle 0^A0^I|\hat{g}|1^B1^B1^A\rangle\langle A_0|\hat{0}_\alpha^+|A_9\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle \\ &+ \frac{1}{4}\sum_I\langle 0^A0^I|\hat{g}|1^B1^B1^A\rangle\langle A_0|\hat{0}_\alpha^+|A_9\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle \\ &+ \frac{1}{4}\sum_I\langle 0^A1^I|\hat{g}|1^B1^B1^A\rangle\langle A_0|\hat{0}_\alpha^+|A_9\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle \\ &+ \frac{1}{4}\sum_I\langle 0^A0^I|\hat{g}|1^B1^B1^A\rangle\langle A_0|\hat{0}_\alpha^+|A_9\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle \\ &+ \frac{1}{4}\sum_I\langle 0^I0^A|\hat{g}|1^B1^B1^A\rangle\langle A$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^{I}|\hat{h}|0^{I}\rangle \langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle \\ &+ \frac{1}{2} \sum_{I} \langle 0^{I}|\hat{h}|0^{I}\rangle \langle I_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle \\ &+ \frac{1}{2} \sum_{I} \langle 1^{I}|\hat{h}|1^{I}\rangle \langle I_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \\ &+ \frac{1}{2} \sum_{I} \langle 1^{I}|\hat{h}|1^{I}\rangle \langle I_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle \\ &+ \frac{1}{2} \sum_{I} \langle 0^{I}0^{I}|\hat{g}|0^{I}0^{I}\rangle \langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|I_{0}\rangle \\ &+ \frac{1}{2} \sum_{I} \langle 0^{I}0^{I}|\hat{g}|1^{I}1^{I}\rangle \langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|I_{0}\rangle \end{split}$$

$$\begin{split} &+\frac{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{g}_{\beta}^{-}\hat{g}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{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\\ &+\frac{1}{2}\langle 0^{A}|\hat{h}|0^{A}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\\ &+\frac{1}{2}\langle 0^{B}|\hat{h}|0^{B}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\\ &+\frac{1}{2}\langle 0^{B}|\hat{h}|0^{B}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\\ &+\frac{1}{2}\langle 1^{B}|\hat{h}|1^{B}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\\ &+\frac{1}{2}\langle 1^{B}|\hat{h}|1^{B}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\\ &+\frac{1}{2}\langle 0^{B}0^{B}|\hat{g}|0^{B}0^{B}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{g}_{\beta}^{-}\hat{g}_{\alpha}^{-}|B_{11}\rangle\\ &+\frac{1}{4}\langle 0^{B}1^{B}|\hat{g}|1^{B}0^{B}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle\\ &+\frac{1}{4}\langle 1^{B}0^{B}|\hat{g}|1^{B}0^{B}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle\\ &+\frac{1}{4}\langle 1^{B}0^{B}|\hat{g}|1^{B}0^{B}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle\\ &+\frac{1}{4}\langle 1^{B}0^{B}|\hat{g}|1^{B}0^{B}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle\\ &+\frac{1}{2}\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\\ &+\frac{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}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\\ &+\frac{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}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\\ &+\frac{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{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\\ &+\frac{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{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|1^{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\\ &+\frac{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{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 1^{I}1^{J}|\hat{g}|1^{J}1^{J}\rangle\langle I_$$

$$\begin{split} &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|0^{J}I^{I}\rangle\langle I_{0}|\hat{1}_{n}^{+}\hat{1}_{n}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{n}^{+}\hat{0}_{n}^{-}|J_{0}\rangle\\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 1^{I}I^{J}|\hat{g}|1^{J}I^{I}\rangle\langle I_{0}|\hat{1}_{n}^{+}\hat{1}_{n}^{-}|I_{0}\rangle\langle J_{0}|\hat{1}_{n}^{+}\hat{1}_{n}^{-}|J_{0}\rangle\\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 1^{I}I^{J}|\hat{g}|1^{J}I^{I}\rangle\langle I_{0}|\hat{1}_{n}^{+}\hat{1}_{n}^{-}|I_{0}\rangle\langle J_{0}|\hat{1}_{n}^{+}\hat{1}_{n}^{-}|J_{0}\rangle\\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{J}0^{I}|\hat{g}|0^{I}0^{J}\rangle\langle I_{0}|\hat{0}_{n}^{+}\hat{0}_{n}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{n}^{+}\hat{0}_{n}^{-}|J_{0}\rangle\\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{J}0^{I}|\hat{g}|0^{I}0^{J}\rangle\langle I_{0}|\hat{0}_{n}^{+}\hat{0}_{n}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{n}^{+}\hat{0}_{n}^{-}|J_{0}\rangle\\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{J}1^{I}|\hat{g}|1^{I}0^{J}\rangle\langle I_{0}|\hat{1}_{n}^{+}\hat{1}_{n}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{n}^{+}\hat{0}_{n}^{-}|J_{0}\rangle\\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{J}1^{I}|\hat{g}|1^{I}0^{J}\rangle\langle I_{0}|\hat{0}_{n}^{+}\hat{0}_{n}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{n}^{+}\hat{0}_{n}^{-}|J_{0}\rangle\\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 1^{J}0^{I}|\hat{g}|0^{I}1^{J}\rangle\langle I_{0}|\hat{0}_{n}^{+}\hat{0}_{n}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{n}^{+}\hat{0}_{n}^{-}|J_{0}\rangle\\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 1^{J}1^{I}|\hat{g}|1^{I}1^{J}\rangle\langle I_{0}|\hat{0}_{n}^{+}\hat{0}_{n}^{-}|I_{0}\rangle\langle J_{0}|\hat{1}_{n}^{+}\hat{1}_{n}^{-}|J_{0}\rangle\\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 1^{J}1^{I}|\hat{g}|1^{J}1^{J}\rangle\langle I_{0}|\hat{0}_{n}^{+}\hat{0}_{n}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{n}^{+}\hat{0}_{n}^{-}|J_{0}\rangle\\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^{J}0^{I}|\hat{g}|0^{J}0^{I}\rangle\langle I_{0}|\hat{0}_{n}^{+}\hat{0}_{n}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{n}^{+}\hat{0}_$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\langle 0^{I}0^{A}|\hat{g}|0^{I}0^{A}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\\ &+\frac{1}{2}\sum_{I}\langle 0^{I}0^{A}|\hat{g}|0^{I}0^{A}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 1^{I}0^{A}|\hat{g}|1^{I}0^{A}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 1^{I}0^{A}|\hat{g}|1^{I}0^{A}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 0^{B}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 0^{B}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 0^{B}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 0^{B}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 0^{B}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 0^{B}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 1^{B}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 1^{B}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 1^{B}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 0^{B}0^{I}|\hat{g}|0^{I}0^{B}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 0^{B}0^{I}|\hat{g}|0^{I}0^{B}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 0^{B}0^{I}|\hat{g}|0^{I}0^{B}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 0^{I}0^{B}|\hat{g}|0^{B}0^{I}\rangle\langle B_{11$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\langle 0^{I}1^{B}|\hat{g}|0^{I}1^{B}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 1^{I}0^{B}|\hat{g}|1^{I}0^{B}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 1^{I}0^{B}|\hat{g}|1^{I}0^{B}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 1^{I}0^{B}|\hat{g}|1^{I}0^{B}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\sum_{I}\langle 1^{I}1^{B}|\hat{g}|1^{I}1^{B}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\\ &+\frac{1}{4}\langle 0^{A}0^{B}|\hat{g}|0^{A}0^{B}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\\ &+\frac{-1}{4}\langle 0^{A}0^{B}|\hat{g}|0^{A}0^{A}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\\ &+\frac{-1}{4}\langle 0^{B}0^{A}|\hat{g}|0^{A}0^{B}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\\ &+\frac{1}{2}\langle 0^{B}0^{A}|\hat{g}|0^{B}0^{A}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\\ &+\frac{1}{2}\langle 1^{B}0^{A}|\hat{g}|1^{B}0^{A}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\\ &+\frac{1}{2}\langle 1^{B}0^{A}|\hat{g}|1^{B}0^{A}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\\ \end{array}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{1})\rangle = \\ &+\frac{1}{2}\sum_{I}\langle 0^{I}|\hat{h}|0^{I}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{I}|\hat{h}|0^{I}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{I}|\hat{h}|1^{I}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{I}|\hat{h}|1^{I}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{I}0^{I}|\hat{g}|0^{I}0^{I}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{I}0^{I}|\hat{g}|1^{I}1^{I}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{I}0^{I}|\hat{g}|1^{I}1^{I}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{I}0^{I}|\hat{g}|1^{I}1^{I}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{1}\rangle\langle I_{1}|I_{1}^{+}\hat{0}_{\alpha}^{-}|I_{1}\rangle\langle I_{1}|I_{1}^{+}\hat{0}_{\alpha}^{-$$

$$\begin{split} &+\frac{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 L_{A_{9},B_{11}}t_{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}_{\beta}^{+}\hat{0}_{\beta}|I_{0}\rangle\langle J_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}|J_{0}\rangle L_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{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 L_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{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 L_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{g}|0^{J}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 L_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{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 L_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{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 L_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{g}|0^{J}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 L_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{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 L_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{2}\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_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}|J_{0}\rangle L_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{2}\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_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}|J_{0}\rangle L_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{I}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{0}_{\beta}^{+}\hat{0}_{\beta}|J_{0}\rangle L_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|0^{J}0^{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 L_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{I}0^{J}0^{J}|\hat{g}|0^{J}0^{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\langle I_{1}|$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 1^{B}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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^{B}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{B}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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^{B}0^{B}|\hat{g}|1^{I}1^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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 1^{B}1^{B}|\hat{g}|0^{I}0^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}1^{B}|\hat{g}|0^{I}0^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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^{B}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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^{B}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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^{B}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}} 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_9,B_{11}} 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_9,B_{11}} 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_9,B_{11}} t_{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_9,B_{11}} t_{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{1}_{\beta}^{-} \hat{1}_{\alpha}^{-} |I_0 \rangle t_{A_9,B_{11}} t_{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_9,B_{11}} t_{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{1}_{\beta}^{-} \hat{1}_{\alpha}^{-} |I_0 \rangle t_{A_9,B_{11}} t_{I_2} \\ &+ \frac{1}{2} \sum_{I} \sum_{I} \langle 0^I 0^J |\hat{g}|1^I 0^J \rangle \langle I_2 |\hat{0}_{\alpha}^{+} \hat{1}_{\beta}^{-} |I_0 \rangle \langle J_0 |\hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} |J_0 \rangle t_{A_9,B_{11}} t_{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_9,B_{11}} t_{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_9,B_{11}} t_{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_9,B_{11}} t_{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_9,B_{11}} t_{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_9,B_{11}} t_{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_9,B_{$$

$$\begin{split} & + \frac{1}{2} \sum_{I} \sum_{J} \langle 0^{I} 1^{J} | \hat{g} | 1^{I} 1^{J} \rangle \langle I_{2} | \hat{0}^{\perp}_{\alpha} \hat{1}^{-}_{\alpha} | I_{0} \rangle \langle J_{0} | \hat{1}^{\perp}_{\alpha} \hat{1}^{-}_{\alpha} | J_{0} \rangle t_{A_{0},B_{11}} t_{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}^{\perp}_{\beta} \hat{1}^{-}_{\beta} | I_{0} \rangle \langle J_{0} | \hat{1}^{\perp}_{\beta} \hat{1}^{-}_{\beta} | J_{0} \rangle t_{A_{0},B_{11}} t_{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}^{\perp}_{\beta} \hat{1}^{-}_{\beta} | I_{0} \rangle \langle J_{0} | \hat{1}^{\perp}_{\alpha} \hat{1}^{-}_{\alpha} | J_{0} \rangle t_{A_{0},B_{11}} t_{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}^{\perp}_{\beta} \hat{0}^{-}_{\alpha} | I_{0} \rangle \langle J_{0} | \hat{1}^{\perp}_{\alpha} \hat{1}^{-}_{\alpha} | J_{0} \rangle t_{A_{0},B_{11}} t_{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}^{\perp}_{\beta} \hat{0}^{-}_{\alpha} | I_{0} \rangle \langle J_{0} | \hat{1}^{\perp}_{\alpha} \hat{1}^{-}_{\alpha} | J_{0} \rangle t_{A_{0},B_{11}} t_{I_{2}} \\ & + \frac{1}{2} \sum_{I} \sum_{J} \langle 0^{I} 1^{J} | \hat{g} | 1^{J} 1^{J} \rangle \langle I_{2} | \hat{1}^{\perp}_{\beta} \hat{0}^{-}_{\beta} | I_{0} \rangle \langle J_{0} | \hat{0}^{\perp}_{\alpha} \hat{0}^{-}_{\alpha} | J_{0} \rangle t_{A_{0},B_{11}} t_{I_{2}} \\ & + \frac{1}{2} \sum_{I} \sum_{J} \langle 0^{I} 1^{J} | \hat{g} | 0^{J} 0^{J} \rangle \langle I_{2} | \hat{0}^{\perp}_{\alpha} \hat{0}^{-}_{\alpha} | I_{0} \rangle \langle J_{0} | \hat{0}^{\perp}_{\alpha} \hat{0}^{-}_{\alpha} | J_{0} \rangle t_{A_{0},B_{11}} t_{I_{2}} \\ & + \frac{1}{2} \sum_{I} \sum_{J} \langle 0^{I} 1^{J} | \hat{g} | 0^{J} 0^{J} \rangle \langle I_{2} | \hat{0}^{\perp}_{\alpha} \hat{0}^{-}_{\alpha} | I_{0} \rangle \langle J_{0} | \hat{0}^{\perp}_{\alpha} \hat{0}^{-}_{\alpha} | J_{0} \rangle t_{A_{0},B_{11}} t_{I_{2}} \\ & + \frac{1}{2} \sum_{I} \sum_{J} \langle 0^{I} 1^{J} | \hat{g} | 0^{J} 0^{J} \rangle \langle I_{2} | \hat{0}^{\perp}_{\alpha} \hat{0}^{-}_{\alpha} | I_{0} \rangle \langle J_{0} | \hat{0}^{\perp}_{\alpha} \hat{0}^{-}_{\alpha} | J_{0} \rangle t_{A_{0},B_{11}} t_{I_{2}} \\ & + \frac{1}{2} \sum_{I} \sum_{J} \langle 0^{I} 1^{J} | \hat{g} | 1^{J} 1^{J} \rangle \langle I_{2} | \hat{0}^{\perp}_{\alpha} \hat{0}^{-}_{\alpha} | I_{0} \rangle \langle J_{0} | \hat{0}^{\perp}_{\beta} \hat{0}^{-}_{\beta} | J_{0} \rangle t_{A_{0},B_{11}} t_{I_{2}} \\ & + \frac{1}{2} \sum_{I} \sum_{J} \langle 0^{I} 1^{J} | \hat{g} | 1^{J} 1^{J} \rangle \langle I_{2} | \hat{0}^{\perp}_{\alpha} \hat{0}^{-}_{\alpha} | I_{0} \rangle \langle J_{0} | \hat{0}^{\perp}_{\beta} \hat{0}^{-}_{\beta} | J_{0} \rangle t_{A_{0},B_{11}} t_{I_{2}} \\ & + \frac{1}{2} \sum_{I} \sum_{J} \langle 0^{I} 1^{J} |$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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}\langle 1^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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}\langle 1^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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}\langle 1^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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}\langle 1^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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}\langle 0^{B}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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}\langle 0^{B}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}\langle 0^{B}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}\langle 1^{B}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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}\langle 1^{B}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_3)\rangle = \\ &+ \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_9,B_{11}} 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_9,B_{11}} 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_9,B_{11}} 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_9,B_{11}} t_{I_3} \\ &+ \frac{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_9,B_{11}} t_{I_3} \\ &+ \frac{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{1}_{\beta}^{-} \hat{1}_{\alpha}^{-} |I_0 \rangle t_{A_9,B_{11}} t_{I_3} \\ &+ \frac{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_9,B_{11}} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^I 0^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_9,B_{11}} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \sum_{I} \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_9,B_{11}} t_{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}_{\beta}^{+} \hat{1}_{\beta}^{-} |I_0 \rangle \langle J_0 |\hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} |J_0 \rangle t_{A_9,B_{11}} t_{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}_{\beta}^{+} \hat{1}_{\beta}^{-} |I_0 \rangle \langle J_0 |\hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} |J_0 \rangle t_{A_9,B_{11}} t_{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}_{\beta}^{+} \hat{1}_{\alpha}^{-} |I_0 \rangle \langle J_0 |\hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} |J_0 \rangle t_{A_9,B_{11}} t_{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}_{\beta}^{+} \hat{0}_{\beta}^{-} |I_0 \rangle \langle J_0 |\hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} |J_0 \rangle t_{A_9,B_{11}} t_{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}_{\beta}^{+} \hat{0}_{\beta}^{-} |I_0 \rangle \langle J_0 |\hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} |J_0 \rangle t_{A_9,B_{11}} t_{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}_{\beta}^{+} \hat{0}_{\beta}^{-} |I_0 \rangle \langle J_0 |\hat{0}_{\beta}^{+} \hat{0}_{\beta}^{-} |J_0 \rangle t_{A_9,B_{$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle I_{3}|\hat{1}_{\beta}^{2}\hat{\sigma}_{\beta}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{2}\hat{\sigma}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{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}^{2}\hat{1}_{\alpha}|I_{0}\rangle\langle J_{0}|\hat{1}_{\alpha}^{2}\hat{1}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{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}_{\beta}^{2}\hat{1}_{\beta}|I_{0}\rangle\langle J_{0}|\hat{1}_{\alpha}^{2}\hat{1}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{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}_{\beta}^{2}\hat{1}_{\beta}|I_{0}\rangle\langle J_{0}|\hat{1}_{\alpha}^{2}\hat{1}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{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}_{\beta}^{2}\hat{0}_{\beta}|I_{0}\rangle\langle J_{0}|\hat{1}_{\alpha}^{2}\hat{1}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{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}_{\beta}^{2}\hat{0}_{\beta}|I_{0}\rangle\langle J_{0}|\hat{1}_{\alpha}^{2}\hat{1}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|0^{J}0^{J}\rangle\langle I_{3}|\hat{1}_{\beta}^{2}\hat{0}_{\beta}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{2}\hat{0}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|0^{J}0^{J}\rangle\langle I_{3}|\hat{0}_{\alpha}^{2}\hat{1}_{\alpha}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{2}\hat{0}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|0^{J}0^{J}\rangle\langle I_{3}|\hat{0}_{\alpha}^{2}\hat{1}_{\alpha}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{2}\hat{0}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|0^{J}0^{J}\rangle\langle I_{3}|\hat{0}_{\alpha}^{2}\hat{1}_{\alpha}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{2}\hat{0}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|1^{J}1^{J}\rangle\langle I_{3}|\hat{0}_{\alpha}^{2}\hat{1}_{\alpha}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{2}\hat{0}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|1^{J}1^{J}\rangle\langle I_{3}|\hat{0}_{\alpha}^{2}\hat{1}_{\alpha}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{2}\hat{0}_{\alpha}^{2}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|1^{J}1^{J}\rangle\langle I_{3}|\hat{0}_{\alpha}^{2}\hat{1}_{\alpha}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{2}\hat{0}_{\beta}^{2}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{I}1^{J}|\hat{g}|1^{J}1^{J}\rangle\langle I_{3}|\hat{0}_{\alpha}^{2}\hat{1}_{\alpha}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{2}\hat{0}_{\beta}^{2}|J_{0}\rangle t_{A_$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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}\langle 1^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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}\langle 1^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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}\langle 1^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 0^{B}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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}\langle 0^{B}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}\langle 0^{B}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}\langle 1^{B}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_{11})\rangle = \\ &+ \frac{1}{2}\langle 0^A|\hat{h}|1^A\rangle\langle A_{10}|\hat{1}_\beta^+\hat{0}_\beta^-|A_9\rangle t_{A_{10},B_{11}} \\ &+ \frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_{10}|\hat{1}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{10},B_{11}} \\ &+ \frac{1}{2}\sum_I \langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_{10}|\hat{1}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{10},B_{11}} \\ &+ \frac{1}{2}\sum_I \langle 0^A1^A|\hat{g}|0^I0^I\rangle\langle A_{10}|\hat{1}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_{10},B_{11}} \\ &+ \frac{-1}{2}\sum_I \langle 0^A1^A|\hat{g}|1^I1^I\rangle\langle A_{10}|\hat{1}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle I_0|\hat{1}_\beta^+\hat{1}_\beta^-|I_0\rangle t_{A_{10},B_{11}} \\ &+ \frac{1}{2}\sum_I \langle 0^A0^I|\hat{g}|1^A0^I\rangle\langle A_{10}|\hat{1}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_{10},B_{11}} \\ &+ \frac{1}{2}\sum_I \langle 0^A1^I|\hat{g}|1^A1^I\rangle\langle A_{10}|\hat{1}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_{10},B_{11}} \\ &+ \frac{1}{2}\langle 0^A0^B|\hat{g}|1^A0^B\rangle\langle A_{10}|\hat{1}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle B_{11}|\hat{0}_\beta^+\hat{0}_\beta^-|B_{11}\rangle t_{A_{10},B_{11}} \\ &+ \frac{1}{2}\langle 0^A0^B|\hat{g}|1^A0^B\rangle\langle A_{10}|\hat{1}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle B_{11}|\hat{0}_\beta^+\hat{0}_\alpha^-|B_{11}\rangle t_{A_{10},B_{11}} \\ &+ \frac{1}{2}\langle 0^A0^B|\hat{g}|1^A0^B\rangle\langle A_{10}|\hat{1}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle B_{11}|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_{11}\rangle t_{A_{10},B_{11}} \\ &+ \frac{1}{2}\langle 0^A1^B|\hat{g}|1^A1^B\rangle\langle A_{10}|\hat{1}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle B_{11}|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_{11}\rangle t_{A_{10},B_{11}} \\ &+ \frac{1}{2}\langle 0^A1^B|\hat{g}|1^A1^B\rangle\langle A_{10}|\hat{1}_\beta^+\hat{1}_\beta^-|A_9\rangle\langle B_{11}|\hat{1}_\alpha^+\hat{1}_\alpha^-|B_{11}\rangle$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{12})\rangle = \\ &+ \frac{1}{2}\langle 0^B|\hat{h}|1^B\rangle\langle B_{12}|\hat{1}_\beta^+\hat{0}_\beta^-|B_{11}\rangle t_{A_9,B_{12}} \\ &+ \frac{1}{2}\langle 0^B0^B|\hat{g}|0^B1^B\rangle\langle B_{12}|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|B_{11}\rangle t_{A_9,B_{12}} \\ &+ \frac{1}{2}\langle 0^B1^B|\hat{g}|1^B1^B\rangle\langle B_{12}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{0}_\beta^-\hat{1}_\alpha^-|B_{11}\rangle t_{A_9,B_{12}} \\ &+ \frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_{12}|\hat{1}_\beta^+\hat{0}_\beta^-|B_{11}\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_9,B_{12}} \\ &+ \frac{1}{2}\sum_I \langle 0^B1^I|\hat{g}|1^B1^I\rangle\langle B_{12}|\hat{1}_\beta^+\hat{0}_\beta^-|B_{11}\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^B1^B|\hat{g}|0^I0^I\rangle\langle B_{12}|\hat{1}_\beta^+\hat{0}_\beta^-|B_{11}\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_9,B_{12}} \\ &+ \frac{-1}{2}\sum_I \langle 0^B1^B|\hat{g}|1^I1^I\rangle\langle B_{12}|\hat{1}_\beta^+\hat{0}_\beta^-|B_{11}\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\alpha^-|I_0\rangle t_{A_9,B_{12}} \\ &+ \frac{1}{2}\sum_I \langle 0^B0^I|\hat{g}|1^B0^I\rangle\langle B_{12}|\hat{1}_\beta^+\hat{0}_\beta^-|B_{11}\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^B1^I|\hat{g}|1^B1^I\rangle\langle B_{12}|\hat{1}_\beta^+\hat{0}_\beta^-|B_{11}\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^B1^I|\hat{g}|1^B1^I\rangle\langle B_{12}|\hat{1}_\beta^+\hat{0}_\beta^-|B_{11}\rangle\langle I_0|\hat{1}_\alpha^+\hat{1}_\alpha^-|I_0\rangle t_{A_9,B_{12}} \\ &+ \frac{1}{2}\langle 0^A0^B|\hat{g}|0^A1^B\rangle\langle A_9|\hat{0}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle B_{12}|\hat{1}_\beta^+\hat{0}_\beta^-|B_{11}\rangle t_{A_9,B_{12}} \\ &+ \frac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_9|\hat{0}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle B_{12}|\hat{1}_\beta^+\hat{0}_\beta^-|B_{11}\rangle t_{A_9,B_{12}} \\ &+ \frac{-1}{2}\langle 0^A0^A|\hat{g}|0^B1^B\rangle\langle A_9|\hat{0}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle B_{12}|\hat{1}_\beta^+\hat{0}_\beta^-|B_{11}\rangle t_{A_9,B_{12}} \\ \end{pmatrix}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_9)\rangle = \\ &+\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_9,B_{11}}t_{I_{12},J_9} \\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^II^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_9,B_{11}}t_{I_{12},J_9} \\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^II^I|\hat{g}|0^JI^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_9,B_{11}}t_{I_{12},J_9} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^II^I|\hat{g}|0^JI^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_9,B_{11}}t_{I_{12},J_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^II^I|\hat{g}|0^JI^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_9,B_{11}}t_{I_{12},J_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^II^I|\hat{g}|1^I0^J\rangle\langle I_{12}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle t_{A_9,B_{11}}t_{I_{12},J_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^II^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_9,B_{11}}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_9,B_{11}}t_{I_{12},J_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\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{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|J_0\rangle t_{A_9,B_{11}}t_{I_{12},J_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\langle 0^I0^J|\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_9,B_{11}}t_{I_{12},J_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\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_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_0|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_{12},J_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\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_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_0|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_{12},J_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\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_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_0|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_{12},J_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^J1^K\rangle\langle$$

$$\begin{split} & + \frac{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{\sigma}_{\beta}^{-} | K_{0} \rangle_{A_{9,B1}} t_{I_{12},J_{9}} \\ & + \frac{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{\sigma}_{\beta}^{-} | K_{0} \rangle_{A_{9,B1}} t_{I_{12},J_{9}} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{B} 0^{I} | \hat{g} | 0^{B} 0^{J} \rangle \langle A_{9} | \hat{0}_{\beta}^{+} \hat{\sigma}_{\alpha}^{-} | A_{9} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle_{A_{9,B1}} t_{I_{12},J_{9}} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{B} 0^{I} | \hat{g} | 0^{B} 0^{J} \rangle \langle B_{11} | \hat{0}_{\alpha}^{+} \hat{\sigma}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle_{A_{9,B1}} t_{I_{12},J_{9}} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{B} 0^{B} | \hat{g} | 0^{I} 0^{J} \rangle \langle B_{11} | \hat{0}_{\alpha}^{+} \hat{\sigma}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle_{A_{9,B1}} t_{I_{12},J_{9}} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{B} 0^{I} | \hat{g} | 0^{J} 0^{J} \rangle \langle B_{11} | \hat{0}_{\alpha}^{+} \hat{\sigma}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle_{A_{9,B1}} t_{I_{12},J_{9}} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{B} 0^{I} | \hat{g} | 0^{J} 0^{J} \rangle \langle B_{11} | \hat{0}_{\alpha}^{+} \hat{\sigma}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle_{A_{9}} \langle J_{9} | \hat{\sigma}_{\alpha}^{-} | J_{0} \rangle_{A_{9,B1}} t_{I_{12},J_{9}} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{I} 0^{B} 0^{J} | \hat{g} | 0^{J} 0^{J} \rangle \langle I_{12} | \hat{\sigma}_{\alpha}^{+} \hat{\sigma}_{\alpha}^{+} \hat{\sigma}_{\alpha}^{-} | I_{0} \rangle \langle J_{9} | \hat{\sigma}_{\alpha}^{-} | J_{0} \rangle_{A_{9}} \langle J_{9} | \hat{\sigma}_{\alpha}^{-} | J_{0} \rangle_{A_{9,B1}} t_{I_{12},J_{9}} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{I} 0^{I} 1^{I} | \hat{g} | 0^{J} 1^{J} \rangle \langle I_{12} | \hat{\sigma}_{\alpha}^{+} \hat{\sigma}_{\alpha}^{+} \hat{\sigma}_{\alpha}^{-} | I_{0} \rangle \langle J_{9} | \hat{\sigma}_{\alpha}^{-} | I_{0} \rangle_{A_{9}} \langle J_{9} | \hat{\sigma}_{\alpha}^{-} | I_{0} \rangle_{A_{9}} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{I} 0^{I} 1^{I} | \hat{g} | 0^{J} 1^{J} \rangle \langle I_{12} | \hat{\sigma}_{\alpha}^{+} \hat{\sigma}_{\alpha}^{-} \hat{\sigma}_{\alpha$$

$$\begin{split} &\langle (A_0,B_{11})|\hat{H}|(A_0,B_{11},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_0,B_{11}} t_{I_{14},J_7} \\ &+ \frac{-1}{8} \sum_{I} \sum_{J} \langle 0^I I^I |\hat{g}|1^I 0^J \rangle \langle I_{14}|\hat{0}^+_{\beta}|\hat{1}^+_{\beta}|\hat{I}_{\beta}|J_0 \rangle \langle J_7|\hat{0}^-_{\beta}|J_0 \rangle t_{A_0,B_{11}} t_{I_{14},J_7} \\ &+ \frac{-1}{8} \sum_{I} \sum_{J} \langle 0^I I^I |\hat{g}|0^J I^I \rangle \langle I_{14}|\hat{1}^+_{\beta}\hat{0}^+_{\beta}|\hat{I}^-_{\beta}|I_0 \rangle \langle J_7|\hat{0}^-_{\beta}|J_0 \rangle t_{A_0,B_{11}} t_{I_{14},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^I I^I |\hat{g}|0^J I^I \rangle \langle I_{14}|\hat{1}^+_{\alpha}\hat{0}^+_{\beta}|\hat{I}^-_{\alpha}|I_0 \rangle \langle J_7|\hat{0}^-_{\beta}|J_0 \rangle t_{A_0,B_{11}} t_{I_{14},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^I I^I |\hat{g}|1^I 0^J \rangle \langle I_{14}|\hat{1}^+_{\alpha}\hat{0}^+_{\beta}|\hat{I}^-_{\alpha}|I_0 \rangle \langle J_7|\hat{0}^-_{\beta}|J_0 \rangle t_{A_0,B_{11}} t_{I_{14},J_7} \\ &+ \frac{1}{8} \sum_{I} \sum_{J} \langle 0^I I^I |\hat{g}|1^J 0^J \rangle \langle I_{14}|\hat{0}^+_{\beta}|\hat{1}^+_{\beta}|\hat{I}^-_{\beta}|I_0 \rangle \langle J_7|\hat{0}^-_{\beta}|J_0 \rangle t_{A_0,B_{11}} t_{I_{14},J_7} \\ &+ \frac{1}{8} \sum_{I} \sum_{J} \langle 0^I I^I |\hat{g}|1^J 0^J \rangle \langle I_{14}|\hat{0}^+_{\beta}|\hat{1}^+_{\beta}|\hat{I}^-_{\beta}|I_0 \rangle \langle J_7|\hat{0}^-_{\beta}|J_0 \rangle t_{A_0,B_{11}} t_{I_{14},J_7} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I 0^J |\hat{g}|0^J 0^J \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_7|\hat{0}^+_{\alpha}|\hat{0}^-_{\beta}|J_0 \rangle t_{A_0,B_{11}} t_{I_{14},J_7} \\ &+ \frac{1}{4} \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_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|K_0 \rangle t_{A_0,B_{11}} t_{I_{14},J_7} \\ &+ \frac{1}{4} \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_0|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|K_0 \rangle t_{A_0,B_{11}} t_{I_{14},J_7} \\ &+ \frac{1}{4} \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_0|\hat{0}^+_{\alpha}\hat{0}^-_{\beta}|K_0 \rangle t_{A_0,B_{11}} t_{I_{14},J_7} \\ &+ \frac{1}{4} \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_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|K_0 \rangle t_{A_0,B_{11}} t_{I_{14},J_7} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^A 0^J \rangle \langle A_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|A_0 \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_7|\hat{0}^-_{\beta}|J_0 \rangle t_{A_0,B_{1$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{10})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{I}|\hat{h}|1^{J}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}} \\ &+ \frac{-1}{8} \sum_{I} \sum_{J} \langle 0^{I}1^{I}|\hat{g}|1^{I}1^{J}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^{I}I^{I}[\hat{g}]I^{J}I^{I}\langle I_{12}[\hat{h}_{0}^{+}\hat{h}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{h}_{\alpha}^{-}|J_{0}\rangle L_{A_{0},B_{11}}t_{I_{12},J_{10}} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^{I}I^{I}[\hat{g}]I^{J}I^{I}\langle I_{12}[\hat{h}_{0}^{+}\hat{h}_{\alpha}^{+}\hat{h}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{h}_{\alpha}^{-}|J_{0}\rangle L_{A_{0},B_{11}}t_{I_{12},J_{10}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}I^{I}[\hat{g}]I^{J}I^{I}\rangle\langle I_{12}[\hat{h}_{0}^{+}\hat{h}_{\alpha}^{+}\hat{h}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{h}_{\alpha}^{-}|J_{0}\rangle L_{A_{0},B_{11}}t_{I_{12},J_{10}} \\ &+\frac{1}{8}\sum_{J}\sum_{J}\langle 0^{I}I^{I}[\hat{g}]I^{J}I^{J}\rangle\langle I_{12}[\hat{h}_{\alpha}^{+}\hat{h}_{\alpha}^{+}\hat{h}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{h}_{\alpha}^{-}|J_{0}\rangle L_{A_{0},B_{11}}t_{I_{12},J_{10}} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\langle 0^{I}I^{J}[\hat{g}]I^{J}I^{J}\rangle\langle I_{12}[\hat{h}_{\alpha}^{+}|\hat{h}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{h}_{\alpha}^{+}]J_{0}\rangle L_{A_{0},B_{11}}t_{I_{12},J_{10}} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\langle 0^{I}I^{J}[\hat{g}]I^{J}I^{J}\rangle\langle I_{12}[\hat{h}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{h}_{\beta}^{+}]\hat{g}_{0}^{-}]A_{0}\rangle L_{A_{0},B_{11}}t_{I_{12},J_{10}} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\langle 0^{I}I^{J}[\hat{g}]I^{J}I^{J}\rangle\langle I_{12}[\hat{h}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{h}_{\beta}^{+}]\hat{g}_{0}^{-}]A_{0}\rangle L_{A_{0},B_{11}}t_{I_{12},J_{10}} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\sum_{K}\langle 0^{I}I^{J}[\hat{g}]I^{J}I^{K}\rangle\langle I_{12}[\hat{h}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{h}_{\alpha}^{+}]\hat{g}_{0}^{-}]A_{0}\rangle L_{A_{0},B_{11}}t_{I_{12},J_{10}} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\sum_{K}\langle 0^{I}I^{J}[\hat{g}]I^{J}I^{K}\rangle\langle I_{12}[\hat{h}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{h}_{\alpha}^{+}]J_{0}\rangle\langle L_{0}[\hat{h}_{\alpha}^{+}]\hat{h}_{\alpha}^{-}]L_{0}\rangle\langle L_{0}[\hat{h}_{\alpha}^{+}]\hat{h}_{\alpha}^{-}]L_{0}\rangle\langle L_{0}[\hat{h}_{\alpha}^{+}]\hat{h}_{\alpha}^{-}]L_{0}\rangle\langle L_{0}[\hat{h}_{\alpha}^{+}]\hat{h}_{\alpha}^{-}]L_{12},J_{10} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\sum_{K}\langle 0^{I}I^{J}[\hat{g}]I^{J}I^{K}\rangle\langle I_{12}[\hat{h}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{h}_{\alpha}^{-}]J_{0}\rangle\langle L_{0}[\hat{h}_{\alpha}^{+}]\hat{h}_{\alpha}^{-}]L_{12},J_{10} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\sum_{J}\langle 0^{I}I^{J}[\hat{g}]I^{J}I^{K}\rangle\langle I_{12}[\hat{h}_{\alpha}^{+}]\hat{h}_{\alpha}^{-}]L_{0}\rangle\langle I_{10}[\hat{h}_{\alpha}^{-}]J_{0}\rangle\langle L_{0}[\hat{h}_{\alpha}^{+}]\hat{h}_{\alpha}^{-}]L_{12},J_{10} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\langle 0^{I}I^{J}[\hat{g}]I^{J}I^{J}\rangle\langle B_{11}[\hat{h}_{\alpha}^{+}]\hat{h}_{\alpha}^{-}]A_{0}\rangle\langle I_{10}[\hat{h}_{\alpha}^{-}]J_{0}\rangle\langle I_{10}[\hat{h}_{\alpha}^{+}]\hat{h}_{\alpha}^{-}]L_{12},J_{10}$$

$$\begin{split} &+\frac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{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_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{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_{9},I_{12}}t_{B_{11},J_{10}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{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_{9},I_{12}}t_{B_{11},J_{10}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{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_{9},I_{12}}t_{B_{11},J_{10}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{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_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{A}1^{J}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\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^{B}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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^{B}0^{B}|\hat{g}|0^{I}1^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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^{B}0^{B}|\hat{g}|0^{I}1^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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^{B}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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^{B}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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^{B}0^{I}|\hat$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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\langle I_{A_9,B_{11}}t_{I_4,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{a}_{\beta}^{-}|I_0\rangle\langle J_8|\hat{1}_{\beta}^{-}|J_0\rangle\langle I_{A_9,B_{11}}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\langle I_{A_9,B_{11}}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\langle I_{A_9,B_{11}}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\langle I_{A_9,B_{11}}t_{I_{14},J_8} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_{14}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_8|\hat{1}_{\beta}^{-}|J_0\rangle\langle I_{A_9,B_{11}}t_{I_{14},J_8} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^J1^J\rangle\langle I_{14}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_8|\hat{1}_{\beta}^{-}|J_0\rangle\langle I_{A_9,B_{11}}t_{I_{14},J_8} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I1^I|\hat{g}|1^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\langle I_{A_9,B_{11}}t_{I_{14},J_8} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\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}_{\beta}^{-}|J_0\rangle\langle I_{A_9,B_{11}}t_{I_{14},J_8} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\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}_{\beta}^{-}|J_0\rangle\langle I_0|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_0\rangle\langle I_{A_9,B_{11}}t_{I_{14},J_8} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\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 I_0|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle\langle I_{A_9,B_{11}}t_{I_{14},J_8} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\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{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle\langle I_{A_9,B_{11}}t_{I_{14},J_8} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\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{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle\langle I_{A_9,B_{11}}t_{I_{14},J_8} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\sum_{K}\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_{14}|\hat{0}_$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{A}1^{J}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{A}|\hat{g}|0^{I}1^{J}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{B}|\hat{g}|0^{I}1^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{B}|\hat{g}|0^{I}1^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}\\ \end{aligned}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_9)\rangle = \\ &+\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_9,B_{11}}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_9,B_{11}}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{0}_{\alpha}^{+}\hat{0}_{\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}{8}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{g}|1^{I}0^{J}\rangle\langle I_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{+}\hat{g}_{\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}{8}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{g}|1^{I}0^{J}\rangle\langle I_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{+}\hat{g}_{\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}{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{g}_{\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}{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}_{\beta}^{+}\hat{g}_{\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^{I}1^{I}|\hat{g}|0^{I}0^{J}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\beta}^{+}\hat{g}_{\alpha}^{-}|J_{0}\rangle t_{A_9,B_{11}}t_{I_{11},J_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\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}_{\alpha}^{+}|J_{0}\rangle\langle K_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_9,B_{11}}t_{I_{11},J_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\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_9,B_{11}}t_{I_{11},J_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\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}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_9,B_{11}}t_{I_{11},J_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\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_9,B_{11}}t_{I_{11},J_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{N}1^{I}|\hat{g$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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^{I}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_{9},I_{11}}t_{B_{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_{9},I_{11}}t_{B_{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_{9},I_{11}}t_{B_{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{1}_{\alpha}^{+}\hat{0}_{\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}{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_{9},I_{11}}t_{B_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{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_{9},I_{11}}t_{B_{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}_{\alpha}^{+}\hat{0}_{\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^{I}1^{I}\hat{g}|0^{I}0^{J}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\beta}^{+}\hat{g}_{\beta}^{-}\hat{a}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{K}\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}_{\alpha}^{-}|J_{0}\rangle\langle K_{0}|\hat{0}_{\alpha}^{+}\hat{a}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\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{a}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{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}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|0^{J}0^{N}\rangle\langle I_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{7})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}|\hat{h}|0^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{g}|1^{I}0^{J}\rangle\langle I_{13}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}} \\ &+ \frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{I}1^{I}|\hat{g}|0^{I}0^{J}\rangle\langle I_{13}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{I}|\hat{g}|0^{I}0^{J}\rangle\langle I_{13}|\hat{0}_{\alpha}^{+}\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}} \end{split}$$

$$\begin{split} &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{g}|I^{I}0^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{g}|I^{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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}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_{9},B_{11}}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}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}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{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\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_{9},B_{11}}t_{I_{13},J_{7}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{A}0^{J}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\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}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{A}|\hat{g}|1^{I}0^{J}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\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}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_{10})\rangle = \\ &+\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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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{1}^+_{\alpha}\hat{0}^-_{\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}{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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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}^-_{\alpha}|J_0\rangle t_{A_9,B_{11}}t_{I_{11},J_{10}} \\ &+\frac{1}{4}\sum_{J}\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}^-_{\alpha}|J_0\rangle t_{A_9,B_{11}}t_{I_{11},J_{10}} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\langle 1^I1^J|\hat{g}|1^J1^J|\hat{g}|1^J1^J\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle I_{10}|\hat{1}^+_{\beta}\hat{1}^-_{\alpha}|J_0\rangle t_{A_9,B_{11}}t_{I_{11},J_{10}} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\langle 1^I1^J|\hat{g}|1^J1^J|\hat{g}|1^J1^J|\hat{g}|1^$$

$$\begin{split} & + \frac{1}{4} \sum_{I} \sum_{J} \sum_{K} (1^{I} N^{K} |\hat{g}| 1^{J} 0^{K}) \langle I_{11} |\hat{1}_{\alpha}^{\perp} |I_{0} \rangle \langle I_{10} |\hat{1}_{\alpha}^{\perp} |J_{0} \rangle \langle K_{0} |\hat{0}_{\alpha}^{\uparrow} \hat{0}_{\alpha}^{\perp} |K_{0} k_{0} k_{0} k_{1} t_{11}, J_{10} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \sum_{K} (1^{I} I^{K} |\hat{g}| 1^{J} I^{K} \rangle \langle I_{11} |\hat{1}_{\alpha}^{\perp} |I_{0} \rangle \langle I_{10} |\hat{1}_{\alpha}^{\perp} |J_{0} \rangle \langle K_{0} |\hat{0}_{\alpha}^{\uparrow} \hat{0}_{\alpha}^{\perp} |K_{0} \rangle k_{0} k_{0} k_{11} t_{11}, J_{10} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \sum_{K} (1^{I} I^{J} |\hat{g}| 0^{K} 0^{K} \rangle \langle I_{11} |\hat{1}_{\alpha}^{\perp} |I_{0} \rangle \langle J_{10} |\hat{1}_{\alpha}^{\perp} |J_{0} \rangle \langle K_{0} |\hat{0}_{\alpha}^{\uparrow} \hat{0}_{\alpha}^{\perp} |K_{0} \rangle k_{0} k_{0} k_{11} t_{11}, J_{10} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \sum_{K} \langle I^{I} I^{K} |\hat{g}| 1^{J} I^{K} \rangle \langle I_{11} |\hat{1}_{\alpha}^{\perp} |I_{0} \rangle \langle J_{10} |\hat{1}_{\alpha}^{\perp} |J_{0} \rangle \langle K_{0} |\hat{0}_{\alpha}^{\uparrow} \hat{0}_{\beta}^{\perp} |K_{0} \rangle k_{0}, k_{11} t_{11}, J_{10} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \sum_{K} \langle I^{I} I^{K} |\hat{g}| 1^{J} I^{K} \rangle \langle I_{11} |\hat{1}_{\alpha}^{\perp} |I_{0} \rangle \langle J_{10} |\hat{1}_{\alpha}^{\perp} |J_{0} \rangle \langle K_{0} |\hat{0}_{\beta}^{\uparrow} \hat{0}_{\beta}^{\perp} |K_{0} \rangle k_{0}, k_{11} t_{11}, J_{10} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle I^{I} I^{K} |\hat{g}| 1^{J} I^{K} \rangle \langle I_{11} |\hat{1}_{\alpha}^{\perp} |I_{0} \rangle \langle J_{10} |\hat{1}_{\alpha}^{\perp} |J_{0} \rangle \langle K_{0} |\hat{0}_{\beta}^{\uparrow} \hat{0}_{\beta}^{\perp} |K_{0} \rangle k_{0}, k_{11} t_{11}, J_{10} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle I^{O} I^{A} |\hat{g}| 0^{A} I^{J} \rangle \langle B_{11} |\hat{0}_{\beta}^{\uparrow} \hat{0}_{\alpha}^{\perp} |B_{11} \rangle \langle I_{11} |\hat{1}_{\alpha}^{\perp} |I_{0} \rangle \langle I_{10} |\hat{1}_{\alpha}^{\perp} |J_{0} \rangle \langle I_{10} |\hat{1}_{\alpha}^{\perp} |I_{10} \rangle \langle I_{10} |\hat{0}_{\alpha}^{\uparrow} |\hat{0}_{\beta}^{\perp} |K_{0} \rangle k_{0}, k_{11} t_{11}, J_{10} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle I^{D} I^{I} |\hat{g}| 0^{B} I^{J} \rangle \langle B_{11} |\hat{0}_{\alpha}^{\uparrow} \hat{0}_{\alpha}^{\perp} |B_{11} \rangle \langle I_{11} |\hat{1}_{\alpha}^{\uparrow} |I_{0} \rangle \langle I_{10} |\hat{1}_{\alpha}^{\perp} |I_{0} \rangle \langle I_{10} |\hat{1}_{$$

$$\begin{split} &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{10}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{B}|\hat{g}|1^{I}1^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{10}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{B}|\hat{g}|1^{I}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{10}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{B}1^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11}) | \hat{H} | (A_9, B_{11}, I_{13}, J_8) \rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I l^1 \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_9, B_{11}} t_{I_{13}, J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^I 0^I | \hat{g} | 1^I 1^J \rangle \langle I_{13} | \hat{0}_{\beta}^+ \hat{0}_{\beta}^+ \hat{1}_{\alpha}^- | I_0 \rangle \langle J_8 | \hat{1}_{\beta}^- | J_0 \rangle t_{A_9, B_{11}} t_{I_{13}, J_8} \\ &+ \frac{-1}{8} \sum_{I} \sum_{J} \langle 0^I 1^I | \hat{g} | 0^I 1^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_9, B_{11}} t_{I_{13}, J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^I 0^I | \hat{g} | 1^I 1^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_9, B_{11}} t_{I_{13}, J_8} \\ &+ \frac{-1}{8} \sum_{I} \sum_{J} \langle 0^I 0^I | \hat{g} | 1^I 1^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_9, B_{11}} t_{I_{13}, J_8} \\ &+ \frac{1}{8} \sum_{I} \sum_{J} \langle 0^I 0^I | \hat{g} | 1^I 1^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_9, B_{11}} t_{I_{13}, J_8} \\ &+ \frac{1}{8} \sum_{I} \sum_{J} \langle 0^I 0^I | \hat{g} | 0^I 1^J \rangle \langle I_{13} | \hat{0}_{\beta}^+ \hat{0}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle \langle J_8 | \hat{1}_{\beta}^- | J_0 \rangle t_{A_9, B_{11}} t_{I_{13}, J_8} \\ &+ \frac{1}{8} \sum_{I} \sum_{J} \langle 0^I 1^I | \hat{g} | 0^I 1^J \rangle \langle I_{13} | \hat{0}_{\beta}^+ \hat{0}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle \langle J_8 | \hat{1}_{\alpha}^- \hat{0}_{\beta}^- \hat{0}_{\alpha}^- | J_0 \rangle t_{A_9, B_{11}} t_{I_{13}, J_8} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \sum_{J} \langle 1^I 0^J | \hat{g} | 0^J 1^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_9, B_{11}} t_{I_{13}, J_8} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \sum_{J} \langle 1^I 0^K | \hat{g} | 1^J 0^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_9, B_{11}} t_{I_{13}, J_8} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \sum_{J} \langle 1^I 0^K | \hat{g} | 1^J 0^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_9, B_{11}} t_{I_{13}, J_8} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^I 1^J | \hat{g} | 0^K 0^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$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_{12})\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I \hat{h}|0^J \langle J_1|\hat{0}_n^{\dagger} I_0 \rangle \langle J_{12}|\hat{0}_n^{\dagger} | J_0 \rangle t_{A_9,B_{11}} t_{I_9,J_{12}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I O^I \hat{h}|0^J \langle J_1|\hat{0}_n^{\dagger} \hat{0}_n^{\dagger} \hat{0}_n^{\dagger} \hat{0}_n^{\dagger} \hat{0}_n^{\dagger} \hat{0}_n^{\dagger} | J_0 \rangle t_{A_9,B_{11}} t_{I_9,J_{12}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I O^I \hat{h}|\hat{0}_I^{\dagger} O^J \langle J_2|\hat{0}_n^{\dagger} \hat{1}_n^{\dagger} \hat{1}_n^{\dagger} I_0 \rangle \langle J_{12}|\hat{0}_n^{\dagger} | J_0 \rangle t_{A_9,B_{11}} t_{I_9,J_{12}} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^I I^J |\hat{0}_I^{\dagger} O^J \rangle \langle I_2|\hat{0}_n^{\dagger} \hat{1}_n^{\dagger} \hat{1}_n^{\dagger} I_0 \rangle \langle J_{12}|\hat{0}_n^{\dagger} \hat{1}_n^{\dagger} \hat{1}_n I_0 \rangle t_{A_9,B_{11}} t_{I_9,J_{12}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I I^J |\hat{0}_I^{\dagger} O^J \rangle \langle I_2|\hat{0}_n^{\dagger} I_0 \rangle \langle J_{12}|\hat{0}_n^{\dagger} \hat{1}_n^{\dagger} \hat{1}_n^{\dagger} I_0 \rangle t_{A_9,B_{11}} t_{I_9,J_{12}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I I^J |\hat{0}_I^{\dagger} I^J \rangle \langle I_2|\hat{0}_n^{\dagger} I_0 \rangle \langle J_{12}|\hat{1}_n^{\dagger} \hat{0}_n^{\dagger} \hat{1}_n^{\dagger} I_0 \rangle t_{A_9,B_{11}} t_{I_9,J_{12}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I I^J |\hat{0}_I^{\dagger} I^J \rangle \langle I_2|\hat{0}_n^{\dagger} I_0 \rangle \langle J_{12}|\hat{1}_n^{\dagger} \hat{0}_n^{\dagger} \hat{1}_n^{\dagger} I_0 \rangle t_{A_9,B_{11}} t_{I_9,J_{12}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I I^J |\hat{0}_I^{\dagger} I^J \rangle \langle I_2|\hat{0}_n^{\dagger} I_0 \rangle \langle J_{12}|\hat{0}_n^{\dagger} \hat{1}_n^{\dagger} \hat{1}_n I_0 \rangle t_{A_9,B_{11}} t_{I_9,J_{12}} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^I I^J |\hat{0}_I^{\dagger} I^J \rangle \langle I_2|\hat{0}_n^{\dagger} I_0 \rangle \langle J_{12}|\hat{0}_n^{\dagger} \hat{1}_n^{\dagger} \hat{1}_n I_0 \rangle t_{A_9,B_{11}} t_{I_9,J_{12}} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^I I^J |\hat{0}_I^{\dagger} I^J \rangle \langle I_2|\hat{0}_n^{\dagger} I_0 \rangle \langle J_{12}|\hat{0}_n^{\dagger} \hat{1}_n^{\dagger} \hat{1}_n I_0 \rangle t_{A_9,B_{11}} t_{I_9,J_{12}} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\langle 0^I I^J |\hat{0}_I^{\dagger} I^J \rangle \langle I_2|\hat{0}_n^{\dagger} I_0 \rangle \langle I_2|\hat{0}_n^{\dagger} I_0 \rangle \langle I_2|\hat{0}_n^{\dagger} I_0 \rangle t_{A_9,B_{11}} t_{I_9,J_{12}} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\langle 0^I I^J |\hat{0}_I^{\dagger} I^J \rangle \langle I_2|\hat{0}_n^{\dagger} I_0 \rangle \langle I_2|\hat{0}_n^{\dagger} I_0$$

$$\begin{split} &+\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_{9},J_{12}}t_{B_{11},I_{9}}} \\ &+\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_{9},J_{12}}t_{B_{11},I_{9}}} \\ &+\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_{9},J_{12}}t_{B_{11},I_{9}}} \\ &+\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_{9},J_{12}}t_{B_{11},I_{9}}} \\ &+\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{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{9}}} \\ &+\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_{9},J_{12}}t_{B_{11},I_{9}}} \\ &+\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_{9},J_{12}}t_{B_{11},I_{9}}} \\ &+\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_{9},J_{12}}t_{B_{11},I_{9}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{K}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle A_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{9}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{R}0^{I}|\hat{g}|0^{R}0^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{R}0^{I}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{R}0^{I}0^{J}|\hat{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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}_\beta^+\hat{0}_\beta^+\hat{1}_\alpha^-|J_0\rangle t_{A_9,B_{11}}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{0}_\beta^+\hat{1}_\alpha^-|J_0\rangle t_{A_9,B_{11}}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_9,B_{11}}t_{I_7,J_{14}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\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_9,B_{11}}t_{I_7,J_{14}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\sum_{L}\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}_\alpha^-|K_0\rangle t_{A_9,B_{11}}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}_\alpha^-|K_0\rangle t_{A_9,B_{11}}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}_\alpha^-|K_0\rangle t_{A_9,B_{11}}t_{I_7,J_{14}} \\ &+ \frac{1}{4}\sum_{L}\sum_{L}\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^+|I_0\rangle\langle K_0|\hat{0}_\beta^+|I_0\rangle\langle K_0|$$

$$\begin{split} &+\frac{-1}{4}\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_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}\\ &+\frac{-1}{4}\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_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}\\ &+\frac{1}{4}\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_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}\\ &+\frac{1}{4}\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_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{A}|\hat{g}|0^{A}0^{J}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{A}|\hat{g}|0^{I}0^{J}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{B}|\hat{g}|0^{I}0^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{B}|\hat{g}|0^{I}0^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{B}|\hat{g}|0^{J}0^{J}\rangle\langle B_{11}|\hat$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{10},J_{12})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 0^I|\hat{g}|1^I 0^J\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}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^I 0^I|\hat{g}|1^I 0^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_9,B_{11}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^I 1^I|\hat{g}|1^I 0^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_9,B_{11}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{8}\sum_{I}\sum_{J}\langle 1^I 1^J|\hat{g}|0^J 1^J\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+\hat{1}_{\beta}^+\hat{1}_{\alpha}^-|J_0\rangle t_{A_9,B_{11}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^I 1^J|\hat{g}|0^J 1^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_9,B_{11}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^J 1^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_9,B_{11}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^J 1^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_9,B_{11}}t_{I_{10},J_{12}} \\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^J 1^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_9,B_{11}}t_{I_{10},J_{12}} \\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|1^J 1^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_9,B_{11}}t_{I_{10},J_{12}} \\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 1^I 0^J|\hat{g}|0^J 1^J\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle t_{A_9,B_{11}}t_{I_{10},J_{12}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\langle 1^I 0^J|\hat{g}|0^J 1^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_9,B_{11}}t_{I_{10},J_{12}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\sum_{K}\langle 1^I 0^J|\hat{g}|0^K 0^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_9,B_{11}}t_{I_{10},J_{12}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\sum_{K}\langle 1^I 0^J|\hat{g}|0^K 0^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_9,B_{11}}t_{I_{10},J_{12}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\sum_{K}\langle 1^I 0^J|\hat{g}|0^J 1^K\rangle\langle I$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{2}\hat{0}_{\alpha}^{-}|B_{11}\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}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{B}0^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{B}|\hat{g}|1^{I}0^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}1^{B}|0^{J}\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}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}1^{B}|1^{I}0^{J}\rangle\langle I_{10}|\hat{1}_{\beta}^{-}|\hat{1}_{\beta}^{-}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{10}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}1^{B}|1^{J}0^{J}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{10}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{J}|\hat{g}|1^{J}0^{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_{9},J_{12}}t_{B_{11},I_{10}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{J}|\hat{g}|0^{J}1^{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_{9},J_{12}}t_{B_{11},I_{10}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{J}|\hat{g}|0^{J}1^{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_{9},J_{12}}t_{B_{11},I_{10}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{J}|\hat{g}|0^{J}1^{J}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{0}|\hat{0}_{\alpha}^{+}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{12}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{14})\rangle =$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{a}|0^{J}\rangle\langle I_{8}|\hat{1}_{\hat{\alpha}}|I_{0}\rangle\langle J_{14}|\hat{0}_{\hat{\beta}}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{a}|1^{I}0^{J}\rangle\langle I_{8}|\hat{1}_{\hat{\alpha}}^{+}\hat{0}_{\hat{\alpha}}^{-}\hat{0}_{\hat{\alpha}}|I_{0}\rangle\langle J_{14}|\hat{0}_{\hat{\beta}}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{I}|\hat{a}|1^{I}0^{J}\rangle\langle I_{8}|\hat{1}_{\hat{\alpha}}^{+}\hat{1}_{\hat{\alpha}}^{-}\hat{1}_{\hat{\alpha}}|I_{0}\rangle\langle J_{14}|\hat{0}_{\hat{\beta}}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 1^{I}1^{J}|\hat{a}|0^{J}1^{J}\rangle\langle I_{8}|\hat{1}_{\hat{\beta}}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\hat{\beta}}^{+}\hat{1}_{\hat{\beta}}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{a}|1^{J}1^{J}\rangle\langle I_{8}|\hat{1}_{\hat{\beta}}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\hat{\beta}}^{+}\hat{1}_{\hat{\beta}}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 1^{I}1^{J}|\hat{a}|0^{J}1^{J}\rangle\langle I_{8}|\hat{1}_{\hat{\beta}}^{-}|I_{0}\rangle\langle J_{14}|\hat{1}_{\hat{\beta}}^{+}\hat{0}_{\hat{\beta}}^{+}\hat{1}_{\hat{\beta}}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 1^{I}1^{J}|\hat{a}|0^{J}1^{J}\rangle\langle I_{8}|\hat{1}_{\hat{\beta}}^{-}|I_{0}\rangle\langle J_{14}|\hat{1}_{\hat{\alpha}}^{+}\hat{0}_{\hat{\beta}}^{+}\hat{1}_{\hat{\beta}}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{a}|1^{J}1^{J}\rangle\langle I_{8}|\hat{1}_{\hat{\beta}}^{-}|I_{0}\rangle\langle J_{14}|\hat{1}_{\hat{\alpha}}^{+}\hat{0}_{\hat{\beta}}^{+}\hat{1}_{\hat{\beta}}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\langle 1^{I}0^{J}|\hat{a}|0^{J}1^{J}\rangle\langle I_{8}|\hat{1}_{\hat{\beta}}^{-}|I_{0}\rangle\langle J_{14}|\hat{1}_{\hat{\alpha}}^{+}\hat{1}_{\hat{\beta}}^{+}\hat{0}_{\hat{\alpha}}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\langle 1^{I}0^{J}|\hat{a}|0^{J}1^{J}\rangle\langle I_{8}|\hat{1}_{\hat{\beta}}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\hat{\beta}}^{+}\hat{1}_{\hat{\beta}}^{-}|J_{0}\rangle\langle I_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\langle 1^{I}0^{J}|\hat{a}|1^{J}1^{J}\rangle\langle I_{8}|\hat{1}_{\hat{\beta}}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\hat{\beta}}^{+}|\hat{\beta}_{\hat{\beta}}^{-}|J_{0}\rangle\langle I_{0}\rangle t_{0}\hat{0}_{\hat{\alpha}}^{+}\hat{\beta}_{\hat{\beta}}^{-}|J_{0}\rangle\langle I_{0}\rangle t_{0}\hat{0}_{\hat{\alpha}}^{+}\hat{\beta}_{\hat{\beta}}^{-}|I_{0}\rangle\langle I_{14}|\hat{0}_{\hat{\beta}}^{+}|J_{0}\rangle\langle I_{0}\rangle t_{0}\hat{0}_{\hat{\alpha}}^{+}\hat{\beta}_{\hat{\beta}}^{-}|I_{0}\rangle\langle I_{14}|\hat{0}_{\hat{\beta}}^{+}|J_{0}\rangle\langle I_{14}|\hat{0}_{\hat{\beta}}^$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}|\hat{h}|1^{J}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{g}|0^{I}1^{J}\rangle\langle I_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{I}|\hat{g}|1^{I}1^{J}\rangle\langle I_{9}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|0^{J}1^{J}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|0^{J}1^{J}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} & + \frac{-1}{8} \sum_{I} \sum_{J} \langle 0^{I}0^{J} | \hat{g} | 1^{J}0^{J} \langle 1_{0} | \hat{0}_{\alpha} | I_{0} \rangle \langle 1_{1} | \hat{1}_{\alpha}^{\perp} \hat{0}_{\alpha}^{\perp} \hat{0}_{\alpha} | J_{0} \rangle t_{A_{9},B_{11}} 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_{0} | \hat{0}_{\alpha} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{\perp} \hat{0}_{\beta}^{\perp} \hat{0}_{\beta} | J_{0} \rangle t_{A_{9},B_{11}} 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_{0} | \hat{0}_{\alpha} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{\perp} \hat{0}_{\alpha}^{\perp} \hat{0}_{\alpha} | J_{0} \rangle t_{A_{9},B_{11}} 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_{0} | \hat{0}_{\alpha} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{\perp} \hat{0}_{\alpha}^{\perp} \hat{0}_{\alpha} | J_{0} \rangle t_{A_{9},B_{11}} t_{I_{9},J_{11}} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \sum_{J} \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}^{\perp} | J_{0} \rangle \langle K_{0} | \hat{0}_{\alpha}^{\perp} \hat{0}_{\alpha} | K_{0} \rangle t_{A_{9},B_{11}} t_{I_{9},J_{11}} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \sum_{J} \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}^{\perp} | J_{0} \rangle \langle K_{0} | \hat{0}_{\alpha}^{\perp} \hat{0}_{\alpha} | K_{0} \rangle t_{A_{9},B_{11}} t_{I_{9},J_{11}} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \sum_{J} \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}^{\perp} | J_{0} \rangle \langle K_{0} | \hat{0}_{\alpha}^{\perp} \hat{0}_{\alpha} | K_{0} \rangle t_{A_{9},B_{11}} t_{I_{9},J_{11}} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \sum_{J} \langle 0^{I}0^{I}1^{J} | \hat{g} | 1^{J}0^{K} \rangle \langle I_{9} | \hat{0}_{\alpha} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{\perp} | J_{0} \rangle \langle K_{0} | \hat{0}_{\beta}^{\perp} \hat{0}_{\beta}^{\perp} | K_{0} \rangle t_{A_{9},B_{11}} t_{I_{9},J_{11}} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{I}0^{I}1^{J} | \hat{g} | 1^{J}1^{J} \rangle \langle I_{9} | \hat{0}_{\alpha}^{\perp} | I_{0} \rangle \langle I_{11} | \hat{1}_{\alpha}^{\perp} | J_{0} \rangle \langle K_{0} | \hat{0}_{\beta}^{\perp} \hat{0}_{\beta}^{\perp} | K_{0} \rangle t_{A_{9},B_{11}} t_{I_{9},J_{11}} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{I}0^{I}1^{J} | \hat{g} | 1^{J}1^{J} \rangle \langle I_{9} | \hat{0}_{\alpha}^{\perp} | \hat{g}_{0} \rangle \langle I_{11} | \hat{1}_{\alpha}^{\perp} | I_{0} \rangle \langle I_{11} | \hat{I}_{\alpha}^{\perp} | I_{0} \rangle \langle I_{11} | \hat{I}_{\alpha}^{\perp} | I_{0} \rangle \langle I_{11} | I_{\alpha}^{\perp} | I_{0} \rangle \langle I_{11} | I_{\alpha}^{\perp} | I_{0} \rangle \langle I_{11} | I_$$

$$\begin{split} &+\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_{9},J_{11}}t_{B_{11},I_{9}}\\ &+\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_{9},J_{11}}t_{B_{11},I_{9}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{A}1^{J}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{B}|\hat{g}|0^{I}1^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{B}|\hat{g}|0^{I}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle B_{11}|\hat{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_7,J_{13})\rangle = \\ &+\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_9,B_{11}}t_{I_7,J_{13}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^IO^I|\hat{g}|0^II^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_9,B_{11}}t_{I_7,J_{13}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^IO^I|\hat{g}|0^II^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_9,B_{11}}t_{I_7,J_{13}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^IO^J|\hat{g}|0^JI^J\rangle\langle I_7|\hat{0}_\alpha^+|I_0\rangle\langle J_{13}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_9,B_{11}}t_{I_7,J_{13}} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^IO^J|\hat{g}|1^JO^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{0}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_9,B_{11}}t_{I_7,J_{13}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^IO^J|\hat{g}|1^JO^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{0}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_9,B_{11}}t_{I_7,J_{13}} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^IO^J|\hat{g}|1^JO^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{0}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_9,B_{11}}t_{I_7,J_{13}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^IO^J|\hat{g}|1^JO^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{0}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_9,B_{11}}t_{I_7,J_{13}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^IO^J|\hat{g}|0^JI^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{0}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle t_{A_9,B_{11}}t_{I_7,J_{13}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\langle 0^IO^J|\hat{g}|0^JI^J\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{0}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_0|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_9,B_{11}}t_{I_7,J_{13}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\langle 0^IO^K|\hat{g}|1^JO^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_9,B_{11}}t_{I_7,J_{13}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\langle 0^II^K|\hat{g}|1^JI^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_9,B_{11}}t_{I_7,J_{13}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\langle 0^II^K|\hat{g}|0^KO^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_9,B_{11}}t_{I_7,J_{13}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^AO^I|\hat{g}|0^AI^J\rangle\langle A_9|\hat{0}_\beta^+\hat{0}_\beta^-|A_9\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}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^AO^I|\hat{g}|0^AI^J\rangle\langle A_9|\hat{0}_\beta^+\hat{0}_\beta^-|A_9\rangle\langle I_7|\hat{0}_\beta^-|I_0\rangle\langle J_{13}|\hat{1}_\beta^+|J_0\rangle t_{A_9,$$

$$\begin{split} &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{B}|\hat{g}|0^{I}1^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11}) | \hat{H} | (A_9, B_{11}, I_{10}, J_{11}) \rangle = \\ &+ \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_9, B_{11}} t_{I_{10}, J_{11}} \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 0^I 0^I | \hat{g} | 1^I 1^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_9, B_{11}} t_{I_{10}, J_{11}} \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 1^I 1^I | \hat{g} | 1^I 1^J \rangle \langle I_{10} | \hat{1}_\beta^+ \hat{1}_\beta^- \hat{b}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ | J_0 \rangle t_{A_9, B_{11}} t_{I_{10}, J_{11}} \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 0^J 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{b}_\beta^- | J_0 \rangle t_{A_9, B_{11}} t_{I_{10}, J_{11}} \\ &+ \frac{-1}{8} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 0^J 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_9, B_{11}} t_{I_{10}, J_{11}} \\ &+ \frac{-1}{8} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 1^J 0^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_9, B_{11}} t_{I_{10}, J_{11}} \\ &+ \frac{-1}{8} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 1^J 0^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_9, B_{11}} t_{I_{10}, J_{11}} \\ &+ \frac{1}{8} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 0^J 1^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_9, B_{11}} t_{I_{10}, J_{11}} \\ &+ \frac{1}{8} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 0^J 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_9, B_{11}} t_{I_{10}, J_{11}} \\ &+ \frac{1}{8} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 0^J 1^J \rangle \langle I_{10} | \hat{1}_\alpha^- | I_0 \rangle \langle J_{11} | \hat{1}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_9, B_{11}} t_{I_{10}, J_{11}} \\ &+ \frac{1}{4} \sum_I \sum_J \langle 1^I 0^J | \hat{g} | 0^J 1^J \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_9, B_{11}} t_{I_{10}, J_{11}} \\ &+ \frac{1}{4} \sum_I \sum_J \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_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | K_0 \rangle t_{A_9, B_{11}} t_{I_{10}, J_{11}} \\ &+ \frac{1}{4} \sum_I \sum_J \langle 1^I 1^J | \hat{g} | 1^J 1^J K \rangle \langle I_0 | \hat{0}_\alpha^- | \hat{0}_\alpha^- | I$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{I}|\hat{g}|1^{I}1^{J}\rangle\langle I_{10}|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}\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}}} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|0^{J}1^{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_{9},J_{11}}t_{B_{11},I_{10}}} \\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|0^{J}1^{J}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}} \\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|1^{J}0^{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_{9},J_{11}}t_{B_{11},I_{10}}} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|1^{J}0^{J}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|1^{J}0^{J}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}} \\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|0^{J}1^{J}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|0^{J}1^{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\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\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_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\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_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\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_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{A}1^{J}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{13})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{I}|\hat{h}|1^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{g}|1^{I}1^{J}\rangle\langle I_{8}|\hat{1}_{\alpha}^{+}\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{I}|\hat{g}|1^{I}1^{J}\rangle\langle I_{8}|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}} \\ &+ \frac{-1}{8}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|0^{J}1^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}} \\ &+ \frac{-1}{8}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|1^{J}0^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|1^{J}0^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}} \\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|1^{J}0^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}} \\ \end{split}$$

$$\begin{split} &+\frac{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_{9},B_{11}}t_{I_{8},J_{13}}} \\ &+\frac{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}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}} \\ &+\frac{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_{9},B_{11}}t_{I_{8},J_{13}}} \\ &+\frac{-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_{9},B_{11}}t_{I_{8},J_{13}}} \\ &+\frac{-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_{9},B_{11}}t_{I_{8},J_{13}}} \\ &+\frac{-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{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\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_{9},B_{11}}t_{I_{8},J_{13}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{A}1^{J}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\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}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{A}|\hat{g}|1^{I}1^{J}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\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}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{B}1^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{B}1^{I}|\hat{g}|0^{B}1^{J}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\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}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{B}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle B_{11}|\hat{0}_{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{15},J_{6})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle I_{15}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{6}|\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{15},J_{6}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{g}|1^{J}1^{J}\rangle\langle I_{15}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{6}|\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{15},J_{6}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{I}|\hat{g}|0^{J}0^{J}\rangle\langle I_{15}|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{6}|\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{15},J_{6}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{I}|\hat{g}|1^{J}1^{J}\rangle\langle I_{15}|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{6}|\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{15},J_{6}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{1},J_{1})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},J_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},J_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},J_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},J_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},J_{1}} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}I^{J}|\hat{g}|0^{I}I^{J}\rangle\langle I_{1}|\hat{\alpha}_{n}^{+}\hat{\alpha}_{n}|I_{0}\rangle\langle J_{1}|\hat{\alpha}_{n}^{+}\hat{\alpha}_{n}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},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}_{n}^{+}\hat{\alpha}_{n}|I_{0}\rangle\langle J_{1}|\hat{0}_{n}^{+}\hat{\alpha}_{n}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},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}_{n}^{+}\hat{\alpha}_{n}|I_{0}\rangle\langle J_{1}|\hat{0}_{n}^{+}\hat{\alpha}_{n}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},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}_{n}^{+}\hat{\alpha}_{n}|I_{0}\rangle\langle J_{1}|\hat{0}_{n}^{+}\hat{\alpha}_{n}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},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}_{n}^{+}\hat{\alpha}_{n}|I_{0}\rangle\langle J_{1}|\hat{1}_{n}^{+}\hat{\alpha}_{n}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},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}_{n}^{+}\hat{\alpha}_{n}|I_{0}\rangle\langle J_{1}|\hat{1}_{n}^{+}\hat{\alpha}_{n}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},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}_{n}^{+}\hat{\alpha}_{n}|I_{0}\rangle\langle J_{1}|\hat{0}_{n}^{+}\hat{\alpha}_{n}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},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}_{n}^{+}\hat{\alpha}_{n}|I_{0}\rangle\langle J_{1}|\hat{0}_{n}^{+}\hat{\alpha}_{n}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},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}_{n}^{+}\hat{\alpha}_{n}|I_{0}\rangle\langle J_{1}|\hat{0}_{n}^{+}\hat{\alpha}_{n}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},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}_{n}^{+}\hat{\alpha}_{n}|I_{0}\rangle\langle J_{1}|\hat{0}_{n}^{+}\hat{\alpha}_{n}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},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}_{n}^{+}\hat{\alpha}_{n}|I_{0}\rangle\langle J_{1}|\hat{0}_{n}^{+}\hat{\alpha}_{n}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},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{0}_{n}^{+}\hat{\alpha}_{n}|I_{0}\rangle\langle J_{1}|\hat{0}_{n}^{+}\hat{\alpha}_{n}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},J_{1}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{J}|\hat{g}|1^{J}1^{J}\rangle\langle I_{1}|\hat{0}_{n}^{+}\hat{\alpha}_{n}|I_{0}\rangle\langle J_{1}|\hat{0}_{n}^{+}\hat{\alpha}_{n}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},J_{1}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|1^{J}0^{J}\rangle\langle I_{$$

$$\begin{split} &+\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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}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{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{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_{9},B_{11}}t_{I_{1}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{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{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{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{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{J}|\hat{g}|1^{I}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle I_{1}|\hat{0}_{\beta$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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{0}_{\beta}^{-}|J_0\rangle t_{A_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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 I_1|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle I_1|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle I_1|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{IO}I|\hat{g}|0^{J}I^{J}\rangle\langle I_{1}|\hat{0}_{\sigma}^{\dagger}\hat{0}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\sigma}^{\dagger}\hat{1}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},J_{2}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{IO}I|\hat{g}|0^{J}I^{J}\rangle\langle I_{1}|\hat{0}_{\sigma}^{\dagger}\hat{0}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\sigma}^{\dagger}\hat{1}_{\sigma}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},J_{2}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{IO}I|\hat{g}|0^{J}I^{J}\rangle\langle I_{1}|\hat{0}_{\sigma}^{\dagger}\hat{0}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{1}_{\sigma}^{\dagger}\hat{0}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},J_{2}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{IO}I|\hat{g}|0^{J}I^{J}\rangle\langle I_{1}|\hat{0}_{\sigma}^{\dagger}\hat{0}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\sigma}^{\dagger}\hat{1}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},J_{2}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}I^{I}I|\hat{g}|0^{J}I^{J}\rangle\langle I_{1}|\hat{1}_{\sigma}^{\dagger}\hat{1}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\sigma}^{\dagger}\hat{1}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},J_{2}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}I^{I}I|\hat{g}|0^{J}I^{J}\rangle\langle I_{1}|\hat{1}_{\sigma}^{\dagger}\hat{1}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\sigma}^{\dagger}\hat{1}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},J_{2}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}I^{I}I|\hat{g}|0^{J}I^{J}\rangle\langle I_{1}|\hat{1}_{\sigma}^{\dagger}\hat{1}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\sigma}^{\dagger}\hat{1}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1},J_{2}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}I^{J}I|\hat{g}|0^{J}I^{J}\rangle\langle I_{1}|\hat{0}_{\sigma}^{\dagger}\hat{0}_{\sigma}|I_{0}\rangle\langle J_{2}|\hat{0}_{\sigma}^{\dagger}\hat{1}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}I^{J}I|\hat{g}|0^{J}I^{J}\rangle\langle I_{1}|\hat{0}_{\sigma}^{\dagger}\hat{0}_{\sigma}|I_{0}\rangle\langle J_{2}|\hat{0}_{\sigma}^{\dagger}\hat{1}_{\sigma}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}I^{J}I|\hat{g}|1^{J}I^{J}\rangle\langle I_{1}|\hat{0}_{\sigma}^{\dagger$$

$$\begin{split} &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{2}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{2}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{2}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_1,J_3)\rangle = \\ &+\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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}t_{I_1,J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^I 0^J|\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_9,B_{11}}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{0}_{\beta}^{-}|J_0\rangle t_{A_9,B_{11}}t_{I_1,J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}{}^{I}{}^{I}|\hat{g}|0^{J}{}^{J}\rangle\langle I_{I}|\hat{1}_{\beta}^{+}\hat{1}_{\alpha}^{-}|I_{O}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{O}\rangle L_{A_{9},B_{11}}t_{I_{1},J_{3}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}{}^{O}{}^{J}|\hat{g}|0^{I}{}^{I}{}^{J}\rangle\langle I_{I}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{O}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{O}\rangle L_{A_{9},B_{11}}t_{I_{1},J_{3}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}{}^{O}{}^{J}|\hat{g}|0^{I}{}^{I}{}^{J}\rangle\langle I_{I}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{O}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{O}\rangle L_{A_{9},B_{11}}t_{I_{1},J_{3}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}{}^{O}{}^{J}|\hat{g}|0^{I}{}^{I}{}^{J}\rangle\langle I_{I}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{O}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{O}\rangle L_{A_{9},B_{11}}t_{I_{1},J_{3}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}{}^{O}{}^{J}|\hat{g}|0^{I}{}^{J}\rangle\langle I_{I}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{O}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{O}\rangle L_{A_{9},B_{11}}t_{I_{1},J_{3}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}{}^{O}{}^{J}|\hat{g}|0^{I}{}^{J}\rangle\langle I_{I}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{O}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|J_{O}\rangle L_{A_{9},B_{11}}t_{I_{1}}t_{J_{3}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}{}^{O}{}^{J}|\hat{g}|0^{I}{}^{J}\rangle\langle I_{I}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{O}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{O}\rangle L_{A_{9},B_{11}}t_{I_{1}}t_{J_{3}}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}{}^{O}{}^{J}|\hat{g}|0^{I}{}^{J}\rangle\langle I_{I}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{O}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{O}\rangle L_{A_{9},B_{11}}t_{I_{1}}t_{J_{3}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}{}^{O}{}^{J}|\hat{g}|1^{I}{}^{J}\rangle\langle I_{I}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{O}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{O}\rangle L_{A_$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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}_{\hat{n}}^{+\hat{n}}\hat{a}_{-}|I_0\rangle \langle J_1|\hat{0}_{\hat{n}}^{+}\hat{0}_{\hat{o}}^{-}|J_0\rangle t_{A_9,B_{11}}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}_{\hat{n}}^{+\hat{n}}\hat{a}_{-}|I_0\rangle \langle J_1|\hat{0}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|J_0\rangle t_{A_9,B_{11}}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}_{\hat{n}}^{+\hat{n}}\hat{a}_{-}|I_0\rangle \langle J_1|\hat{0}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|J_0\rangle t_{A_9,B_{11}}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}_{\hat{n}}^{+\hat{n}}\hat{a}_{-}|I_0\rangle \langle J_1|\hat{1}_{\hat{p}}^{+}\hat{1}_{\hat{o}}^{-}|J_0\rangle t_{A_9,B_{11}}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}_{\hat{n}}^{+}\hat{a}_{-}|I_0\rangle \langle J_1|\hat{0}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|J_0\rangle t_{A_9,B_{11}}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}_{\hat{n}}^{+}\hat{a}_{-}^{-}|I_0\rangle \langle J_1|\hat{0}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|J_0\rangle t_{A_9,B_{11}}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}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|I_0\rangle \langle J_1|\hat{0}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|J_0\rangle t_{A_9,B_{11}}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}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|I_0\rangle \langle J_1|\hat{0}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|J_0\rangle t_{A_9,B_{11}}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}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|I_0\rangle \langle J_1|\hat{0}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|J_0\rangle t_{A_9,B_{11}}t_{I_2,J_1} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|1^J 1^J\rangle \langle I_2|\hat{1}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|I_0\rangle \langle J_1|\hat{0}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|J_0\rangle t_{A_9,B_{11}}t_{I_2,J_1} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|0^J 0^J\rangle \langle I_2|\hat{0}_{\hat{p}}^{+}\hat{1}_{\hat{o}}^{-}|I_0\rangle \langle J_1|\hat{0}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|J_0\rangle t_{A_9,B_{11}}t_{I_2,J_1} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|0^J 0^J\rangle \langle I_2|\hat{0}_{\hat{p}}^{+}\hat{1}_{\hat{o}}^{-}|I_0\rangle \langle J_1|\hat{0}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|J_0\rangle t_{A_9,B_{11}}t_{I_2,J_1} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I 1^J|\hat{g}|0^J 0^J\rangle \langle I_2|\hat{0}_{\hat{p}}^{+}\hat{1}_{\hat{o}}^{-}|I_0\rangle \langle J_1|\hat{0}_{\hat{p}}^{+}\hat{0}_{\hat{o}}^{-}|J_0\rangle t_{A_9,B_{11}}t_{I_2,J_1} \\ &+$$

$$\begin{split} &+\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{g}_{\beta}|J_{0}\rangle t_{A_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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{1}_{\beta}^{+}\hat{1}_{\beta}|J_{0}\rangle t_{A_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}t_{I_{2}}t_{J_{1}} \\ &+\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_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}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_{9},B_{11}}t_{I_{2}}t_{J_{1}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|1^{J}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_{9},B_{11}}t_{I_{2}}t_{J_{1}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\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_{9},B_{11}}t_{I_{2}}t_{J_{1}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|1^{J}1^{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_{9},B_{11}}t_{I_{2}}t_{J_{1}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|1^{J}1^{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_{9$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{3},J_{1})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{I}0^{J}|\hat{g}|1^{I}0^{J}\rangle \langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3},J_{1}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{I}0^{J}|\hat{g}|1^{I}0^{J}\rangle \langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3},J_{1}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{I}0^{J}|\hat{g}|1^{I}0^{J}\rangle \langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3},J_{1}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{I}1^{J}|\hat{g}|1^{I}1^{J}\rangle \langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3},J_{1}} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle 1_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3},J_{1}}, \\ &+\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_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}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_{9},B_{11}}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}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3},J_{1}}, \\ &+\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_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}|J_{0}\rangle t_{A_{9},B_{11}}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_{9},B_{11}}t_{I_{3},J_{1}}, \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|1^{J}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_{A_{9},B_{11}}t_{I_{3},J_{1}}, \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\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_{A_{9},B_{11}}t_{I_{3},J_{1}}, \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|1^{J}1^{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_{9},B_{11}}t_{I_{3},J_{1}}, \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|1^{$$

$$\begin{split} &+\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_{9},B_{11}}t_{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}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{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}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{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{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{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{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{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{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{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{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{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_{A_{9},B_{11}}t_{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_{A_{9},B_{11}}t_{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_{A_{9},B_{11}}t_{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{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|1^{J}1^{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_{9},B_{11}}t_{I_{3}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{J}|\hat{g}|\hat{g}|1^{J}1^{J}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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}_{\alpha}^{-}|I_0\rangle\langle J_2|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_0\rangle t_{A_9,B_{11}}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_9,B_{11}}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_9,B_{11}}t_{I_2,J_2} \\ &+ \frac{1}{4}\sum_{J}\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_9,B_{11}}t_{I_2,J_2} \\ &+ \frac{1}{4}\sum_{J}\sum_{J}\langle 0^I0^J|\hat{g}|1$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle I_{2}|\hat{\alpha}_{\alpha}^{\dagger}\hat{\alpha}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{\alpha}_{\beta}^{\dagger}\hat{\sigma}_{\beta}|J_{0}\rangle\lambda_{A_{0},B_{11}}t_{I_{2},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{0}_{\alpha}^{\dagger}\hat{\alpha}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{\dagger}\hat{\alpha}_{\alpha}|J_{0}\rangle\lambda_{A_{0},B_{11}}t_{I_{2},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{0}_{\beta}^{\dagger}\hat{\alpha}_{\beta}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{\dagger}\hat{\alpha}_{\beta}|J_{0}\rangle\lambda_{A_{0},B_{11}}t_{I_{2},J_{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}^{\dagger}\hat{\alpha}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{\dagger}\hat{0}_{\alpha}|J_{0}\rangle\lambda_{A_{0},B_{11}}t_{I_{2},J_{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}^{\dagger}\hat{\alpha}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{\dagger}\hat{\alpha}_{\alpha}|J_{0}\rangle\lambda_{A_{0},B_{11}}t_{I_{2},J_{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}^{\dagger}\hat{\sigma}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{\dagger}\hat{\alpha}_{\alpha}|J_{0}\rangle\lambda_{A_{0},B_{11}}t_{I_{2},J_{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}^{\dagger}\hat{\sigma}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{\dagger}\hat{\alpha}_{\alpha}|J_{0}\rangle\lambda_{A_{0},B_{11}}t_{I_{2},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}_{\alpha}^{\dagger}\hat{\sigma}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{\dagger}\hat{\alpha}_{\alpha}|J_{0}\rangle\lambda_{A_{0},B_{11}}t_{I_{2},J_{2}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle I_{2}|\hat{1}_{\alpha}^{\dagger}\hat{\sigma}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{\dagger}\hat{\alpha}_{\alpha}|J_{0}\rangle\lambda_{A_{0},B_{11}}t_{I_{2},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}^{\dagger}\hat{a}_{\beta}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{\dagger}\hat{\alpha}_{\alpha}|J_{0}\rangle\lambda_{A_{0},B_{11}}t_{I_{2},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}^{\dagger}\hat{a}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{\dagger}\hat{\alpha}_{\alpha}|J_{0}\rangle\lambda_{A_{0},B_{11}}t_{I_{2},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}^{\dagger}\hat{a}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{\dagger}\hat{a}_{\alpha}|J_{0}\rangle\lambda_{A_{0},B_{11}}t_{I_{2}}\lambda_{2}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|1^{J}1^{J}\rangle\langle I_{2}|\hat{0}_{\alpha}^{\dagger}\hat{a}_{\alpha}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{\dagger}\hat{a}_{\beta}|J_{0}\rangle\lambda_{A_{0},B_{11}}t_{I_{2}}\lambda_{2}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|1^{J}1^{J}\rangle\langle I_{2}|\hat{0}_{\alpha}^{\dagger$$

$$\begin{split} &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{2}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{2}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{2}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{2}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_2,J_3)\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_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_9,B_{11}}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}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\alpha|J_0\rangle t_{A_9,B_{11}}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}^-_\alpha|J_0\rangle t_{A_9,B_{11}}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_9,B_{11}}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}^-_\alpha|J_0\rangle t_{A_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_9,B_{11}}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{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_9,B_{11}}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{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_9,B_{11}}t_{I_2,J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^I1^I$$

$$\begin{split} &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}I^{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}_{\beta}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{2},J_{3}} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}I^{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_{9},B_{11}}t_{I_{2},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_{9},B_{11}}t_{I_{2},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_{9},B_{11}}t_{I_{2},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_{9},B_{11}}t_{I_{2},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_{9},B_{11}}t_{I_{2},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}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}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}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}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}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}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_{A_{9},B_{11}}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_{A_{9},B_{11}}t_{I_{2}}t_{J_{3}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|1^{J}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_{9},B_{11}}t_{I_{2}}t_{J_{3}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|1^{J}1^{J}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J$$

$$+ \tfrac{1}{4} \sum_{I} \sum_{J} \langle 0^{I} 0^{J} | \hat{g} | 1^{I} 1^{J} \rangle \langle I_{2} | \hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{3} | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | J_{0} \rangle t_{A_{9},B_{11}} t_{I_{2}} t_{J_{3}}$$

$$\langle (A_9, B_{11}) | \hat{H} | (A_9, B_{11}, I_3, J_2) \rangle =$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha} | I_0 \rangle \langle J_2 | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha} | J_0 \rangle t_{A_9, B_{11}} t_{I_3, J_2}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha} | I_0 \rangle \langle J_2 | \hat{0}_{\beta}^{+} \hat{1}_{\beta} | J_0 \rangle t_{A_9, B_{11}} t_{I_3, J_2}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha} | I_0 \rangle \langle J_2 | \hat{0}_{\beta}^{+} \hat{1}_{\beta} | J_0 \rangle t_{A_9, B_{11}} t_{I_3, J_2}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha} | I_0 \rangle \langle J_2 | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha} | J_0 \rangle t_{A_9, B_{11}} t_{I_3, J_2}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha} | I_0 \rangle \langle J_2 | \hat{1}_{\beta}^{+} \hat{0}_{\beta} | J_0 \rangle t_{A_9, B_{11}} t_{I_3, J_2}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha} | I_0 \rangle \langle J_2 | \hat{0}_{\beta}^{+} \hat{1}_{\beta} | J_0 \rangle t_{A_9, B_{11}} t_{I_3, J_2}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha} | I_0 \rangle \langle J_2 | \hat{0}_{\beta}^{+} \hat{1}_{\beta} | J_0 \rangle t_{A_9, B_{11}} t_{I_3, J_2}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha} | I_0 \rangle \langle J_2 | \hat{0}_{\beta}^{+} \hat{1}_{\beta} | J_0 \rangle t_{A_9, B_{11}} t_{I_3, J_2}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha} | I_0 \rangle \langle J_2 | \hat{0}_{\beta}^{+} \hat{1}_{\beta} | J_0 \rangle t_{A_9, B_{11}} t_{I_3, J_2}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha} | I_0 \rangle \langle J_2 | \hat{0}_{\beta}^{+} \hat{0}_{\beta} | J_0 \rangle t_{A_9, B_{11}} t_{I_3, J_2}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha} | I_0 \rangle \langle J_2 | \hat{0}_{\beta}^{+} \hat{0}_{\beta} | J_0 \rangle t_{A_9, B_{11}} t_{I_3, J_2}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I 0^J | \hat{g} | 1^I 1^J \rangle \langle I_3 | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha} | I_0 \rangle \langle J_2 | \hat{0}_{\beta}^{+} \hat{0}_{\beta} | J_0 \rangle t_{A_9, B_{11}} t_{I_3, J_2}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^I 1^I | \hat{g} | 0^J 1^J \rangle \langle I_3 | \hat{0}_{\alpha$$

$$\begin{split} &+\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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}t_{I_{3}}t_{J_{2}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{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_{9},B_{11}}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{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}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}^$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{3},J_{3})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{I}0^{J}|\hat{g}|1^{I}1^{J}\rangle \langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3},J_{3}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{I}0^{J}|\hat{g}|1^{I}1^{J}\rangle \langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3},J_{3}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{I}0^{J}|\hat{g}|1^{I}1^{J}\rangle \langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3},J_{3}} \end{split}$$

$$\begin{split} &+\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_{9},B_{11}}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}_{\alpha}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}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}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}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}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}t_{I_{3},J_{3}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|1^{J}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_{9},B_{11}}t_{I_{3},J_{3}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|1^{J}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_{9},B_{11}}t_{I_{3},J_{3}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}1^{J}|\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_{9},B_{11}}t_{I_{3},J_{3}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}1^{J}|\hat{g}|0^{J}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_{9},B_{11}}t_{I_{3},J_{3}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}1^{J}|\hat{g}|0^{J}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_{9},B_{11}}t_{I_{3},J_{3}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}1^{J}|\hat{g}|1^{J}1^{J}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0$$

$$\begin{split} &+\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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{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_{9},B_{11}}t_{I_{3}}t_{J_{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{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{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{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{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{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{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_{9},B_{11}}t_{I_{3}}t_{J_{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{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}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}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}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}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{J}|\hat{g}|\hat{g}|1^{I}1^{J}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{4},J_{5})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle I_{4}|\hat{0}_{\alpha}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{5}|\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{4},J_{5}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle I_{4}|\hat{0}_{\alpha}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{5}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{4},J_{5}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle I_{4}|\hat{1}_{\alpha}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{5}|\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{4},J_{5}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{I}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle I_{4}|\hat{1}_{\alpha}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{5}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{4},J_{5}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{5},J_{4})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{I} 1^{I} |\hat{g}| 1^{J} 0^{J} \rangle \langle I_{5} |\hat{0}_{\beta}^{+} \hat{1}_{\alpha}^{-} |I_{0}\rangle \langle J_{4} |\hat{0}_{\alpha}^{+} \hat{1}_{\beta}^{-} |J_{0}\rangle t_{A_{9},B_{11}} t_{I_{5},J_{4}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{I} 1^{I} |\hat{g}| 0^{J} 1^{J} \rangle \langle I_{5} |\hat{1}_{\beta}^{+} \hat{0}_{\alpha}^{-} |I_{0}\rangle \langle J_{4} |\hat{0}_{\alpha}^{+} \hat{1}_{\beta}^{-} |J_{0}\rangle t_{A_{9},B_{11}} t_{I_{5},J_{4}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{I} 1^{I} |\hat{g}| 0^{J} 1^{J} \rangle \langle I_{5} |\hat{0}_{\beta}^{+} \hat{1}_{\alpha}^{-} |I_{0}\rangle \langle J_{4} |\hat{1}_{\alpha}^{+} \hat{0}_{\beta}^{-} |J_{0}\rangle t_{A_{9},B_{11}} t_{I_{5},J_{4}} \end{split}$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{I} 1^{I} | \hat{g} | 1^{J} 0^{J} \rangle \langle I_{5} | \hat{1}_{\beta}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{4} | \hat{1}_{\alpha}^{+} \hat{0}_{\beta}^{-} | J_{0} \rangle t_{A_{9},B_{11}} t_{I_{5},J_{4}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{6},J_{15})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle I_{6}|\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{15}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{6},J_{15}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{I}|\hat{g}|0^{J}0^{J}\rangle\langle I_{6}|\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{15}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{6},J_{15}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{I}0^{I}|\hat{g}|1^{J}1^{J}\rangle\langle I_{6}|\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{15}|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{6},J_{15}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{I}1^{I}|\hat{g}|1^{J}1^{J}\rangle\langle I_{6}|\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{15}|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{11}}t_{I_{6},J_{15}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_9)\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^A |\hat{h}|0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle t_{B_{11},I_9} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^A |\hat{g}|0^A 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ \hat{0}_{\beta}^+ \hat{b}_{\beta}^- |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle t_{B_{11},I_9} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^A |\hat{g}|0^A 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ \hat{a}_{\beta}^+ \hat{b}_{\beta}^- |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle t_{B_{11},I_9} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}|0^I 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\beta}^+ \hat{b}_{\beta}^- \hat{a}_{\alpha}^- |I_0 \rangle t_{B_{11},I_9} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}|0^I 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\beta}^+ \hat{a}_{\beta}^- \hat{a}_{\alpha}^- |I_0 \rangle t_{B_{11},I_9} \\ &+ \frac{1}{2} \sum_{I} \sum_{I} \langle 0^A 0^I |\hat{g}|0^I 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_0 |\hat{0}_{\alpha}^+ \hat{a}_{\alpha}^- |J_0 \rangle t_{B_{11},I_9} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^I 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_0 |\hat{0}_{\alpha}^+ \hat{a}_{\alpha}^- |J_0 \rangle t_{B_{11},I_9} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|0^I 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_0 |\hat{0}_{\beta}^+ \hat{0}_{\alpha}^- |J_0 \rangle t_{B_{11},I_9} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|0^I 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_0 |\hat{0}_{\beta}^+ \hat{0}_{\beta}^- |J_0 \rangle t_{B_{11},I_9} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^I 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_0 |\hat{0}_{\beta}^+ \hat{0}_{\beta}^- |J_0 \rangle t_{B_{11},I_9} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^I 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_0 |\hat{1}_{\beta}^+ \hat{1}_{\beta}^- |J_0 \rangle t_{B_{11},I_9} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}|0^I 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_{11} |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle t_{B_{11},I_9} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}|0^I 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_{11} |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle t_{B_{11},I_9} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}|0^I 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_{11} |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle t_{B_{11},I_9} \\ &+ \frac{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_9)\rangle = \\ &+\frac{1}{2}\sum_{I}\langle 0^A|\hat{h}|0^I\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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^A0^A|\hat{g}|0^A0^I\rangle\langle A_1|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_9\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^A1^A|\hat{g}|1^A0^I\rangle\langle A_1|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_9\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^A0^I|\hat{g}|0^I0^I\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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 0^A0^I|\hat{g}|1^I1^I\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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}\langle 0^A0^I|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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 0^A0^I|\hat{g}|0^J0^J\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_0|\hat{1}_{\beta}^{+}\hat{1}_{\alpha}^{-}|J_0\rangle t_{A_1}t_{B_{11},I_9} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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^A0^B|\hat{g}|0^B0^I\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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^A0^B|\hat{g}|0^I0^B\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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^A0^B|\hat{g}|0^I0^B\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\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^A0^B|\hat{g}|0^I0^B\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\rangle\langle B_{11}|$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_{10})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^A |\hat{h}|1^I \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle t_{B_{11},I_{10}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^A |\hat{g}|0^A 1^I \rangle \langle A_0 |\hat{0}^+_{\alpha} \hat{0}^+_{\beta} \hat{0}^-_{\alpha}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle t_{B_{11},I_{10}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 1^A |\hat{g}|1^A 1^I \rangle \langle A_0 |\hat{1}^+_{\alpha} \hat{1}^+_{\beta} \hat{0}^-_{\alpha}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle t_{B_{11},I_{10}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}|0^I 1^I \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{10}|\hat{1}^+_{\beta} \hat{0}^-_{\alpha} \hat{0}^-_{\alpha}|I_0 \rangle t_{B_{11},I_{10}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 1^I |\hat{g}|1^I 1^I \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{10}|\hat{1}^+_{\beta} \hat{1}^-_{\alpha} \hat{1}^-_{\alpha}|I_0 \rangle t_{B_{11},I_{10}} \\ &+ \frac{-1}{2} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^J 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_0 |\hat{0}^+_{\alpha} \hat{0}^-_{\alpha}|J_0 \rangle t_{B_{11},I_{10}} \\ &+ \frac{-1}{2} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|1^J 1^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_0 |\hat{0}^+_{\alpha} \hat{0}^-_{\alpha}|J_0 \rangle t_{B_{11},I_{10}} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|1^I 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_0 |\hat{0}^+_{\beta} \hat{0}^-_{\alpha}|J_0 \rangle t_{B_{11},I_{10}} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|1^I 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_0 |\hat{0}^+_{\beta} \hat{0}^-_{\alpha}|J_0 \rangle t_{B_{11},I_{10}} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|1^I 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_0 |\hat{0}^+_{\beta} \hat{0}^-_{\alpha}|J_0 \rangle t_{B_{11},I_{10}} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|1^I 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_0 |\hat{0}^+_{\beta} \hat{0}^-_{\alpha}|J_0 \rangle t_{B_{11},I_{10}} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|1^I 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_0 |\hat{0}^+_{\beta} \hat{0}^-_{\alpha}|J_0 \rangle t_{B_{11},I_{10}} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|1^I 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle I_0 |\hat{0}^+_{\beta} \hat{0}^-_{\alpha}|I_0 \rangle t_{B_{11},I_{10}} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|1^I 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{10}|\hat{0}^+_{\alpha}|I_0 \rangle \langle I_0 |\hat{0}^+_{\beta} \hat{0}$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{A}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{A}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{11},I_{10}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|0^{B}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{11},I_{10}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|1^{B}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|1^{I}0^{B}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|1^{I}0^{B}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|1^{I}1^{B}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{11},I_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_{10})\rangle = \\ &+\frac{1}{2}\sum_{I}\langle 0^A|\hat{h}|1^I\rangle\langle A_1|\hat{0}_\alpha^+|A_9\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}|0^A1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-|A_9\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^A|\hat{g}|1^A1^I\rangle\langle A_1|\hat{0}_\alpha^+\hat{0}_\beta^+\hat{0}_\beta^-|A_9\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^I|\hat{g}|0^I1^I\rangle\langle A_1|\hat{0}_\alpha^+|A_9\rangle\langle I_{10}|\hat{1}_\beta^+\hat{0}_\beta^-\hat{0}_\alpha^-|I_0\rangle t_{A_1}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\langle 0^A1^I|\hat{g}|1^I1^I\rangle\langle A_1|\hat{0}_\alpha^+|A_9\rangle\langle I_{10}|\hat{1}_\beta^+\hat{1}_\beta^-\hat{1}_\alpha^-|I_0\rangle t_{A_1}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\langle 0^A1^I|\hat{g}|0^J0^J\rangle\langle A_1|\hat{0}_\alpha^+|A_9\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 0^A1^I|\hat{g}|1^J1^J\rangle\langle A_1|\hat{0}_\alpha^+|A_9\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 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_1|\hat{0}_\alpha^+|A_9\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 0^A0^J|\hat{g}|1^I0^J\rangle\langle A_1|\hat{0}_\alpha^+|A_9\rangle\langle I_{10}|\hat{1}_\alpha^-|I_0\rangle\langle J_0|\hat{0}_\alpha^+\hat{0}_\beta^-|J_0\rangle t_{A_1}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_1|\hat{0}_\alpha^+|A_9\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 0^A1^J|\hat{g}|1^I1^J\rangle\langle A_1|\hat{0}_\alpha^+|A_9\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}\sum_{J}\langle 0^A0^B|\hat{g}|0^B1^I\rangle\langle A_1|\hat{0}_\alpha^+|A_9\rangle\langle B_{11}|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_{11}\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^B|\hat{g}|1^I0^B\rangle\langle A_1|\hat{0}_\alpha^+|A_9\rangle\langle B_{11}|\hat{0}_\alpha^+\hat{0}_\alpha^-|B_{11}\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^B|\hat{g}|1^I0^B\rangle\langle A_1|\hat{0}_\alpha^+|A_9\rangle\langle B_{11}|\hat{0}_\beta^+\hat{0}_\beta^-|B_{11}\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^B|\hat{g}|1^I0^B\rangle\langle A_1|\hat{0}_\alpha^+|A_9\rangle\langle B_{11}|\hat{0}_\beta^+\hat{0}_\beta^-|B_{11}\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^B|\hat{g}|1^I0^B\rangle\langle A_1|\hat{0}_\alpha^+|A_9\rangle$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_9)\rangle =$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 1^{A}|\hat{h}|0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{A}|\hat{g}|1^{A}0^{I}\rangle\langle A_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\beta}^{+}\hat{b}_{\beta}^{-}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}1^{A}|\hat{g}|0^{A}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}\hat{b}_{\beta}^{+}\hat{b}_{\beta}^{-}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\beta}^{+}\hat{b}_{\beta}^{-}\hat{a}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}\hat{a}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{+}\hat{a}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{+}\hat{a}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 1^{A}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{9})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 1^{A}|\hat{h}|0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\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}0^{A}|\hat{g}|1^{A}0^{I}\rangle\langle A_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\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^{A}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}} \\ &+ \frac{1}{2} \sum_{I} \langle 1^{A}0^{I}|\hat{g}|0^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}} \\ &+ \frac{1}{2} \sum_{I} \langle 1^{A}0^{I}|\hat{g}|1^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}} \\ &+ \frac{-1}{2} \sum_{I} \sum_{I} \langle 1^{A}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}} \\ &+ \frac{1}{2} \sum_{I} \sum_{I} \langle 1^{A}0^{I}|\hat{g}|0^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}} \\ &+ \frac{1}{2} \sum_{I} \sum_{I} \langle 1^{A}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}} \\ &+ \frac{1}{2} \sum_{I} \sum_{I} \langle 1^{A}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}} \\ &+ \frac{1}{2} \sum_{I} \sum_{I} \langle 1^{A}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}} \\ &+ \frac{1}{2} \sum_{I} \sum_{I} \langle 1^{A}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}} \\ &+ \frac{1}{2} \sum_{I} \sum_{I} \langle 1^{A}1^{J}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}} \\ &+ \frac{1}{2} \sum_{I} \sum_{I} \langle 1^{A}1^{I}1^{$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\sum_{J}\langle 1^{A}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|1^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{B}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{B}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}1^{B}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}\\ \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{10})\rangle = \\ &+\frac{1}{2}\sum_I \langle 1^A|\hat{h}|1^I\rangle\langle A_2|\hat{1}^+_\alpha|A_9\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^A0^A|\hat{g}|1^A1^I\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\beta|A_9\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^A1^A|\hat{g}|0^A1^I\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_I \langle 1^A0^I|\hat{g}|0^I1^I\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|I_0\rangle t_{A_2}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_I \langle 1^A1^I|\hat{g}|1^I1^I\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^+_\beta\hat{1}^-_\beta\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_I \sum_I \langle 1^A1^I|\hat{g}|0^J0^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_I \sum_J \langle 1^A1^I|\hat{g}|1^J1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_I \sum_J \langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_I \sum_J \langle 1^A0^J|\hat{g}|1^I0^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_I \sum_J \langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_I \sum_J \langle 1^A1^J|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_I \langle 1^A0^B|\hat{g}|0^B1^I\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_{11}|\hat{0}^+_\alpha\hat{0}^-_\alpha|B_{11}\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle t_{A_2}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_I \langle 1^A0^B|\hat{g}|1^I0^B\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_{11}|\hat{0}^+_\alpha\hat{0}^$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{10})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 1^A|\hat{h}|1^I\rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle t_{A_3} t_{B_{11},I_{10}} \end{split}$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{A}|\hat{g}|1^{A}1^{I}\rangle\langle A_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\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}|0^{A}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|1^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{J}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\sum_{I}\langle 1^{A}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\sum_{I}\langle 1^{A}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 1^{A}1^{J}|\hat{g}|1^{J}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|0^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{B}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_{11},I_1)\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}| 1^A 0^I \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_1| \hat{0}^+_{\beta} \hat{0}^-_{\beta} |I_0\rangle t_{A_{10},B_{11}} t_{I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 1^I |\hat{g}| 1^A 1^I \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_1| \hat{1}^+_{\beta} \hat{1}^-_{\beta} |I_0\rangle t_{A_{10},B_{11}} t_{I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 1^A |\hat{g}| 0^I 0^I \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_1| \hat{0}^+_{\beta} \hat{0}^-_{\beta} |I_0\rangle t_{A_{10},B_{11}} t_{I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 1^A |\hat{g}| 1^I 1^I \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_1| \hat{1}^+_{\beta} \hat{1}^-_{\beta} |I_0\rangle t_{A_{10},B_{11}} t_{I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}| 1^A 0^I \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_1| \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} |I_0\rangle t_{A_{10},B_{11}} t_{I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 1^I |\hat{g}| 1^A 1^I \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_1| \hat{1}^+_{\alpha} \hat{1}^-_{\alpha} |I_0\rangle t_{A_{10},B_{11}} t_{I_1} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{10},B_{11},I_{2})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{A}1^{I}\rangle \langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle \langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{10},B_{11}}t_{I_{2}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{A}1^{I}\rangle \langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle \langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{10},B_{11}}t_{I_{2}} \end{split}$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 0^{A}1^{A}|\hat{g}|0^{I}1^{I}\rangle\langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{10},B_{11}}t_{I_{2}}\\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}1^{A}|\hat{g}|1^{I}0^{I}\rangle\langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{10},B_{11}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{A}1^{I}\rangle\langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{10},B_{11}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{A}1^{I}\rangle\langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{10},B_{11}}t_{I_{2}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_{11},I_3)\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}| 1^A 1^I \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_3| \hat{0}^+_{\beta} \hat{1}^-_{\beta} |I_0\rangle t_{A_{10},B_{11}} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}| 1^A 1^I \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_3| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |I_0\rangle t_{A_{10},B_{11}} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 1^A |\hat{g}| 0^I 1^I \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_3| \hat{0}^+_{\beta} \hat{1}^-_{\beta} |I_0\rangle t_{A_{10},B_{11}} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 1^A |\hat{g}| 1^I 0^I \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_3| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |I_0\rangle t_{A_{10},B_{11}} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}| 1^A 1^I \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_3| \hat{0}^+_{\alpha} \hat{1}^-_{\alpha} |I_0\rangle t_{A_{10},B_{11}} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}| 1^A 1^I \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_3| \hat{1}^+_{\alpha} \hat{0}^-_{\alpha} |I_0\rangle t_{A_{10},B_{11}} t_{I_3} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{12})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^B |\hat{h}|0^I \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ |I_0\rangle t_{B_2} t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 1^B |\hat{g}|1^B 0^I \rangle \langle B_2 |\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ |I_0\rangle t_{B_2} t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 1^B |\hat{g}|0^I 1^B \rangle \langle B_2 |\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |B_{11}\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^B 0^B |\hat{g}|0^B 0^I \rangle \langle B_2 |\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ |I_0\rangle t_{B_2} t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 1^B |\hat{g}|0^I 1^B \rangle \langle B_2 |\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ |I_0\rangle t_{B_2} t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 1^B |\hat{g}|1^B 0^I \rangle \langle B_2 |\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ |I_0\rangle t_{B_2} t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 1^B |\hat{g}|1^B 0^I \rangle \langle B_2 |\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ |I_0\rangle t_{B_2} t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 1^B |\hat{g}|1^B 0^I \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |I_0\rangle t_{B_2} t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 1^I |\hat{g}|0^I 1^I \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |I_0\rangle t_{B_2} t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 0^I |\hat{g}|1^I 1^I \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |I_0\rangle t_{B_2} t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 0^I |\hat{g}|1^I 1^I \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |I_0\rangle t_{B_2} t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 0^I |\hat{g}|1^I 1^I \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |I_0\rangle t_{B_2} t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 0^I |\hat{g}|1^I 1^I \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |I_0\rangle t_{B_2} t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 0^I |\hat{g}|1^I 1^I \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |I_0\rangle t_{B_2} t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 0^I |\hat{g}|0^I 1^I \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |I_0\rangle t_{B_2} t_{A_9,I_{12}} \\$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}\\ &+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}\\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}\\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{B}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}\\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}\\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{B}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}\\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|0^{A}0^{I}\rangle\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}\\ \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{12})\rangle = \\ &+ \frac{1}{2} \sum_I \langle 0^B|\hat{h}|0^I\rangle \langle B_3|\hat{0}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_3}t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_I \langle 0^B 1^B|\hat{g}|1^B 0^I\rangle \langle B_3|\hat{1}^+_\alpha\hat{1}^-_\alpha\hat{0}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_3}t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_I \langle 0^B 1^B|\hat{g}|0^I 1^B\rangle \langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha\hat{1}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_3}t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_I \langle 0^B 0^B|\hat{g}|0^B 0^I\rangle \langle B_3|\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_3}t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_I \langle 0^B 1^B|\hat{g}|0^I 1^B\rangle \langle B_3|\hat{1}^+_\alpha\hat{1}^-_\alpha\hat{0}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_3}t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_I \langle 0^B 1^B|\hat{g}|1^B 0^I\rangle \langle B_3|\hat{1}^+_\alpha\hat{0}^-_\alpha\hat{1}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle t_{B_3}t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_I \langle 0^B 1^B|\hat{g}|1^B 0^I\rangle \langle B_3|\hat{1}^+_\beta\hat{0}^-_\alpha\hat{1}^-_\alpha|B_{11}\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^B 1^B|\hat{g}|1^B 0^I\rangle \langle B_3|\hat{0}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_I \langle 0^B 1^I|\hat{g}|0^I 1^I\rangle \langle B_3|\hat{0}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_I \langle 0^B 0^I|\hat{g}|1^I 1^I\rangle \langle B_3|\hat{0}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_I \langle 0^B 0^I|\hat{g}|1^I 1^I\rangle \langle B_3|\hat{0}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_I \langle 0^B 0^I|\hat{g}|1^I 1^I\rangle \langle B_3|\hat{0}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_I \langle 0^B 0^I|\hat{g}|0^I 1^I\rangle \langle B_3|\hat{0}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_9,I_{12}} \\ &+ \frac{1}{4} \sum_I \langle 0^B 0^I|\hat{g}|0^I 1^I\rangle \langle B_3|\hat{0}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_3}t_{A_9,I_{12}} \\ &+ \frac{1}{2} \sum_I \sum_I \langle 0^B 0^I|\hat{g}|0^I 1^I\rangle \langle B_3|\hat{0}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_3}t_{A_9,I_{12}} \\ &+ \frac{1}{2} \sum_I \sum_I \langle 0^B 0^I|\hat{g}|0^I 0^I\rangle \langle B_3|\hat{0}^-_\alpha|B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha|I_0\rangle \langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{B_3}t_{A_9,I_{12}} \\$$

$$+ \tfrac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 0^A 0^I \rangle \langle A_9 | \hat{0}^+_\beta \hat{0}^-_\beta | A_9 \rangle \langle B_3 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_{12} | \hat{0}^+_\alpha | I_0 \rangle t_{B_3} t_{A_9, I_{12}}$$

$$\begin{split} &\langle (A_9, B_{11}) | \hat{H} | (A_9, I_{12}) \rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 1^B | \hat{h} | 0^I \rangle \langle B_0 | \hat{1}_\alpha^- | B_{11} \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle t_{A_9, I_{12}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^B 1^B | \hat{g} | 0^B 0^I \rangle \langle B_0 | \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | B_{11} \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle t_{A_9, I_{12}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^B 0^B | \hat{g} | 1^B 0^I \rangle \langle B_0 | \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | B_{11} \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle t_{A_9, I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 0^B | \hat{g} | 1^B 0^I \rangle \langle B_0 | \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | B_{11} \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle t_{A_9, I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 0^B | \hat{g} | 1^B 0^I \rangle \langle B_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- | B_{11} \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle t_{A_9, I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 1^B | \hat{g} | 0^B 0^I \rangle \langle B_0 | \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- | B_{11} \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle t_{A_9, I_{12}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^B 0^B | \hat{g} | 1^B 0^I \rangle \langle B_0 | \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- | B_{11} \rangle \langle I_{12} | \hat{0}_\alpha^+ | I_0 \rangle t_{A_9, I_{12}} \\ &+ \frac{1}{2} \sum_{I} \langle 1^B 1^I | \hat{g} | 0^I 1^I \rangle \langle B_0 | \hat{1}_\alpha^- | B_{11} \rangle \langle I_{12} | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_9, I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 1^B 0^I | \hat{g} | 1^I 1^I \rangle \langle B_0 | \hat{1}_\alpha^- | B_{11} \rangle \langle I_{12} | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- | I_0 \rangle t_{A_9, I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 1^B 0^I | \hat{g} | 1^I 1^I \rangle \langle B_0 | \hat{1}_\alpha^- | B_{11} \rangle \langle I_{12} | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_9, I_{12}} \\ &+ \frac{1}{2} \sum_{I} \langle 1^B 0^I | \hat{g} | 1^I 1^I \rangle \langle B_0 | \hat{1}_\alpha^- | B_{11} \rangle \langle I_{12} | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_9, I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 1^B 0^I | \hat{g} | 1^I 1^I \rangle \langle B_0 | \hat{1}_\alpha^- | B_{11} \rangle \langle I_{12} | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_9, I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 1^B 0^I | \hat{g} | 1^I 1^I \rangle \langle B_0 | \hat{1}_\alpha^- | B_{11} \rangle \langle I_{12} | \hat{0}_\alpha^+ \hat{1}_\alpha^- | I_0 \rangle t_{A_9, I_{12}} \\ &+ \frac{1}{2} \sum_{I} \langle 1^B 0^I | \hat{g} | 0^I 0^J \rangle \langle B_0 | \hat{1}_\alpha^- | B_{11} \rangle \langle I_{12} | \hat{0}_\alpha^+ | \hat{I}_0 \rangle \langle J_0 | \hat{0}_\alpha^+ \hat{0}_\alpha^- | J_0 \rangle t_{A_9, I_{12}} \\ &+ \frac{1}{2} \sum_{I} \langle 1^B 0^I | \hat{g} | 0^I 0^J \rangle \langle B_0 | \hat{1}_\alpha^- | B_{11} \rangle \langle I_$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{12})\rangle = \\ &+ \frac{1}{2} \sum_I \langle 1^B |\hat{h}|0^I \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle t_{B_1} t_{A_9,I_{12}} \\ &+ \frac{-1}{4} \sum_I \langle 0^B 1^B |\hat{g}|0^B 0^I \rangle \langle B_1 |\hat{0}^+_{\alpha} \hat{1}^-_{\alpha} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle t_{B_1} t_{A_9,I_{12}} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\langle 0^{B}0^{B}|\hat{g}|1^{B}0^{I}\rangle\langle B_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}\hat{1}_{\alpha}^{-}|B_{11}\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^{B}0^{B}|\hat{g}|1^{B}0^{I}\rangle\langle B_{1}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}\hat{0}_{\alpha}^{-}|B_{11}\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^{B}1^{B}|\hat{g}|0^{B}0^{I}\rangle\langle B_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}\hat{0}_{\alpha}^{-}|B_{11}\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^{B}1^{B}|\hat{g}|0^{B}0^{I}\rangle\langle B_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}\hat{0}_{\alpha}^{-}|B_{11}\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^{B}0^{B}|\hat{g}|1^{B}0^{I}\rangle\langle B_{1}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{B}1^{I}|\hat{g}|0^{I}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}1^{I}|\hat{g}|0^{I}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}1^{I}|\hat{g}|0^{I}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|1^{I}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{B}0^{I}|\hat{g}|1^{I}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|0^{I}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\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 1^{B}0^{I}|\hat{g}|0^{I}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|0^{I}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}\langle 1^{B}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle B$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{11})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}|\hat{h}|1^{I}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^{B}1^{B}|\hat{g}|1^{B}1^{I}\rangle \langle B_{2}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^{B}1^{B}|\hat{g}|1^{I}1^{B}\rangle \langle B_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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^{B}0^{B}|\hat{g}|0^{B}1^{I}\rangle \langle B_{2}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^{B}1^{B}|\hat{g}|1^{I}1^{B}\rangle \langle B_{2}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^{B}1^{B}|\hat{g}|1^{B}1^{I}\rangle \langle B_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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^{B}1^{B}|\hat{g}|1^{B}1^{I}\rangle \langle B_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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^{B}0^{I}|\hat{g}|0^{I}1^{I}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}0^{I}|\hat{g}|0^{I}1^{I}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}0^{I}|\hat{g}|0^{I}1^{I}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}0^{I}|\hat{g}|0^{I}1^{I}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}0^{I}|\hat{g}|0^{I}1^{I}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}0^{I}|\hat{g}|0^{I}1^{I}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\langle 0^{B}0^{I}|\hat{g}|0^{I}1^{I}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+\frac{1}{4}\sum_{I}\langle 0^{B}0^{I}|\hat{g}|1^{I}0^{I}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{B}0^{I}|\hat{g}|1^{I}0^{I}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+\frac{-1}{4}\sum_{I}\langle 0^{B}0^{I}|\hat{g}|1^{I}0^{I}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+\frac{-1}{4}\sum_{I}\langle 0^{B}0^{I}|\hat{g}|0^{I}1^{I}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+\frac{-1}{4}\sum_{I}\sum_{I}\langle 0^{B}1^{I}|\hat{g}|0^{J}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+\frac{-1}{2}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|1^{J}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+\frac{1}{2}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|0^{A}1^{I}\langle A_{9}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle I_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|0^{A}1^{I$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{11})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^B|\hat{h}|1^I \rangle \langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle t_{B_3}t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B1^B|\hat{g}|1^B1^I \rangle \langle B_3|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle t_{B_3}t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B1^B|\hat{g}|1^I1^B \rangle \langle B_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-\hat{1}_{\alpha}^-|B_{11}\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^B0^B|\hat{g}|0^B1^I \rangle \langle B_3|\hat{0}_{\beta}^+\hat{0}_{\beta}^-\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle t_{B_3}t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B1^B|\hat{g}|1^I1^B \rangle \langle B_3|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle t_{B_3}t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B1^B|\hat{g}|1^B1^I \rangle \langle B_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-\hat{1}_{\alpha}^-|B_{11}\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^B1^B|\hat{g}|1^B1^I \rangle \langle B_3|\hat{1}_{\beta}^+\hat{0}_{\beta}^-\hat{1}_{\alpha}^-|B_{11}\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^B0^I|\hat{g}|0^I1^I \rangle \langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_{11}|\hat{0}_{\alpha}^+\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle t_{B_3}t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B0^I|\hat{g}|0^I1^I \rangle \langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_{11}|\hat{0}_{\alpha}^+\hat{0}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle t_{B_3}t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B0^I|\hat{g}|1^I0^I \rangle \langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_{11}|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{B_3}t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B0^I|\hat{g}|1^I0^I \rangle \langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_{11}|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{B_3}t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B0^I|\hat{g}|1^I0^I \rangle \langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_{11}|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{B_3}t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B0^I|\hat{g}|0^II^I \rangle \langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_{11}|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-\hat{0}_{\alpha}^-|I_0\rangle t_{B_3}t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B0^I|\hat{g}|0^II^I \rangle \langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_{11}|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-\hat{0}_{\alpha}^-|I_0\rangle t_{B_3}t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B0^I|\hat{g}|0^II^I \rangle \langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_{11}|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{B_3}t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B0^I$$

$$\begin{split} &+ \frac{-1}{2} \sum_{I} \sum_{J} \langle 0^{B} 1^{I} | \hat{g} | 1^{J} 1^{J} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{0} | \hat{1}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | J_{0} \rangle t_{B_{3}} t_{A_{9},I_{11}} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^{B} 0^{J} | \hat{g} | 1^{I} 0^{J} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{0} | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | J_{0} \rangle t_{B_{3}} t_{A_{9},I_{11}} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^{B} 1^{J} | \hat{g} | 1^{I} 1^{J} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{0} | \hat{1}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | J_{0} \rangle t_{B_{3}} t_{A_{9},I_{11}} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^{B} 0^{J} | \hat{g} | 1^{I} 0^{J} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{0} | \hat{0}_{\beta}^{+} \hat{0}_{\beta}^{-} | J_{0} \rangle t_{B_{3}} t_{A_{9},I_{11}} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^{B} 1^{J} | \hat{g} | 1^{I} 1^{J} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{0} | \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} | J_{0} \rangle t_{B_{3}} t_{A_{9},I_{11}} \\ &+ \frac{1}{2} \sum_{I} \sum_{J} \langle 0^{A} 0^{B} | \hat{g} | 0^{A} 1^{I} \rangle \langle A_{9} | \hat{0}_{\beta}^{+} \hat{0}_{\beta}^{-} | A_{9} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle t_{B_{3}} t_{A_{9},I_{11}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, I_{11})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 1^B|\hat{h}|1^I \rangle \langle B_0|\hat{1}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{1}^+_\alpha|I_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 1^B|\hat{g}|0^B 1^I \rangle \langle B_0|\hat{0}^+_\alpha\hat{1}^-_\alpha\hat{0}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{1}^+_\alpha|I_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 0^B|\hat{g}|1^B 1^I \rangle \langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha\hat{1}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{1}^+_\alpha|I_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 0^B|\hat{g}|1^B 1^I \rangle \langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha\hat{1}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{1}^+_\alpha|I_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 1^B|\hat{g}|0^B 1^I \rangle \langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha\hat{1}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{1}^+_\alpha|I_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 1^B|\hat{g}|0^B 1^I \rangle \langle B_0|\hat{0}^+_\alpha\hat{0}^-_\alpha\hat{1}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{1}^+_\alpha|I_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^B 0^B|\hat{g}|1^B 1^I \rangle \langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{1}^+_\alpha|I_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^B 0^B|\hat{g}|1^B 1^I \rangle \langle B_0|\hat{0}^+_\beta\hat{0}^-_\beta\hat{0}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{0}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\alpha|I_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{2} \sum_{I} \langle 1^B 0^I|\hat{g}|0^I 1^I \rangle \langle B_0|\hat{1}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{0}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 1^B 0^I|\hat{g}|0^I 1^I \rangle \langle B_0|\hat{1}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{0}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 1^B 0^I|\hat{g}|1^I 0^I \rangle \langle B_0|\hat{1}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 1^B 0^I|\hat{g}|0^I 1^I \rangle \langle B_0|\hat{1}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 1^B 0^I|\hat{g}|0^I 1^I \rangle \langle B_0|\hat{1}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{1}^+_\alpha\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{2} \sum_{I} \sum_{I} \langle 1^B 1^I|\hat{g}|0^I 1^J \rangle \langle B_0|\hat{1}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{1}^+_\alpha|I_0 \rangle \langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{2} \sum_{I} \sum_{I} \langle 1^B 1^I|\hat{g}|0^I 1^J \rangle \langle B_0|\hat{1}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{1}^+_\alpha|I_0 \rangle \langle J_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0 \rangle t_{A_9,I_{11}} \\ &+ \frac{1}{2} \sum_{I} \sum_{I} \langle 1^B 1^J|\hat{g}|1^I 1^J \rangle \langle B_0|\hat{1}^-_\alpha|B_{11} \rangle \langle I_{11}|\hat{1}^+_\alpha|I_0 \rangle \langle J_0|\hat{0}^+_\beta\hat{0}^-_\beta|J_0 \rangle t$$

$$\begin{split} &\langle (A_9, B_{11}) | \hat{H} | (A_9, B_1, I_{11}) \rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 1^B | \hat{h} | I^I \rangle \langle B_1 | \hat{1}_\alpha^- | B_{11} \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle t_{B_1} t_{A_9, I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 1^B | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | B_{11} \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle t_{B_1} t_{A_9, I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 0^B | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- | B_{11} \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle t_{B_1} t_{A_9, I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 0^B | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha | B_{11} \rangle \langle I_{11} | \hat{1}_\alpha^+ | I_0 \rangle t_{B_1} t_{A_9, I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^B 1^B | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- | B_{11} \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^B 1^B | \hat{g} | 0^B 1^I \rangle \langle B_1 | \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | B_{11} \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^B 0^B | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- | B_{11} \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^B 0^B | \hat{g} | 1^B 1^I \rangle \langle B_1 | \hat{1}_\alpha^- | B_{11} \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}{2} \sum_{I} \langle 1^B 0^I | \hat{g} | 0^I 1^I \rangle \langle B_1 | \hat{1}_\alpha^- | B_{11} \rangle \langle I_{11} | \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- | I_0 \rangle t_{B_1} t_{A_9, I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 1^B 0^I | \hat{g} | 1^I 0^I \rangle \langle B_1 | \hat{1}_\alpha^- | B_{11} \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 1^B 0^I | \hat{g} | 1^I 0^I \rangle \langle B_1 | \hat{1}_\alpha^- | B_{11} \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}{2} \sum_{I} \langle 1^B 0^I | \hat{g} | 1^I 0^I \rangle \langle B_1 | \hat{1}_\alpha^- | B_{11} \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 1^B 1^I | \hat{g} | 0^J 0^J \rangle \langle B_1 | \hat{1}_\alpha^- | B_{11} \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 1^B 1^I | \hat{g} | 1^I 1^J \rangle \langle B_1 | \hat{1}_\alpha^- | B_{11} \rangle \langle I_{11} | \hat{1}_\alpha^+$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{1})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}0^{I}|\hat{g}|1^{B}0^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}1^{I}|\hat{g}|1^{B}1^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{B}1^{B}|\hat{g}|0^{I}0^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{1}} \end{split}$$

$$\begin{split} &+ \frac{-1}{2} \sum_{I} \langle 0^{B} 1^{B} | \hat{g} | 1^{I} 1^{I} \rangle \langle B_{12} | \hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} | B_{11} \rangle \langle I_{1} | \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} | I_{0} \rangle t_{A_{9},B_{12}} t_{I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B} 0^{I} | \hat{g} | 1^{B} 0^{I} \rangle \langle B_{12} | \hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} | B_{11} \rangle \langle I_{1} | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{A_{9},B_{12}} t_{I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B} 1^{I} | \hat{g} | 1^{B} 1^{I} \rangle \langle B_{12} | \hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} | B_{11} \rangle \langle I_{1} | \hat{1}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | I_{0} \rangle t_{A_{9},B_{12}} t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{2})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{2}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{2}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{B}1^{B}|\hat{g}|0^{I}1^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{2}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{B}1^{B}|\hat{g}|1^{I}0^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{2}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{2}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{2}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{3})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{3}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{3}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{B}1^{B}|\hat{g}|0^{I}1^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{3}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{B}1^{B}|\hat{g}|1^{I}0^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{3}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{3}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{B}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{9},B_{12}}t_{I_{3}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_2,)\rangle = \\ &+ \frac{-1}{2}\langle 0^A|\hat{h}|0^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_2} \\ &+ \frac{-1}{2}\langle 0^A0^A|\hat{g}|0^A0^B\rangle\langle A_0|\hat{0}_{\alpha}^+\hat{0}_{\beta}^+\hat{0}_{\beta}^-|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_2} \\ &+ \frac{-1}{2}\langle 0^A1^A|\hat{g}|1^A0^B\rangle\langle A_0|\hat{1}_{\alpha}^+\hat{1}_{\beta}^+\hat{0}_{\beta}^-|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_2} \\ &+ \frac{-1}{2}\langle 0^A0^B|\hat{g}|0^B0^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\beta}^+\hat{0}_{\beta}^-\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_2} \\ &+ \frac{-1}{4}\langle 0^A1^B|\hat{g}|0^B1^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_2} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_3,)\rangle = \\ &+ \frac{-1}{2}\langle 0^A|\hat{h}|0^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_3} \\ &+ \frac{-1}{2}\langle 0^A0^A|\hat{g}|0^A0^B\rangle\langle A_0|\hat{0}_{\alpha}^+\hat{0}_{\beta}^+\hat{0}_{\beta}^-|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_3} \\ &+ \frac{-1}{2}\langle 0^A1^A|\hat{g}|1^A0^B\rangle\langle A_0|\hat{1}_{\alpha}^+\hat{1}_{\beta}^+\hat{0}_{\beta}^-|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_3} \\ &+ \frac{-1}{2}\langle 0^A0^B|\hat{g}|0^B0^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\beta}^+\hat{0}_{\beta}^-\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_3} \\ &+ \frac{-1}{4}\langle 0^A1^B|\hat{g}|0^B1^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_3} \\ &+ \frac{-1}{4}\langle 0^A0^B|\hat{g}|1^B1^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-\hat{1}_{\alpha}^-|B_{11}\rangle t_{B_3} \\ &+ \frac{-1}{2}\langle 0^A0^B|\hat{g}|1^B1^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{1}_{\beta}^+\hat{0}_{\beta}^-\hat{1}_{\alpha}^-|B_{11}\rangle t_{B_3} \\ &+ \frac{1}{4}\langle 0^A0^B|\hat{g}|1^B1^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-\hat{1}_{\alpha}^-|B_{11}\rangle t_{B_3} \\ &+ \frac{1}{4}\langle 0^A0^B|\hat{g}|0^B1^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-\hat{1}_{\alpha}^-|B_{11}\rangle t_{B_3} \\ &+ \frac{1}{4}\langle 0^A1^B|\hat{g}|0^B1^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-\hat{1}_{\alpha}^-|B_{11}\rangle t_{B_3} \\ &+ \frac{-1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|0^B0^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{B_3} \\ &+ \frac{-1}{2}\sum_{I}\langle 0^A1^I|\hat{g}|0^B1^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle t_{B_3} \\ &+ \frac{-1}{2}\sum_{I}\langle 0^A1^I|\hat{g}|0^B1^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle t_{B_3} \\ &+ \frac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|0^I0^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{B_3} \\ &+ \frac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|\hat{g}|1^I1^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{B_3} \\ &+ \frac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|\hat{g}|1^I1^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{B_3} \\ &+ \frac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|\hat{g}|0^I0^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle t_{B_3} \\ &+ \frac{1}{2}\sum_{I}\langle 0^A0^B|\hat{g}|\hat{g}|0^I0^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_2)\rangle = \\ &+ \frac{-1}{2} \langle 0^A|\hat{h}|0^B\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{0}_\alpha^-|B_{11}\rangle t_{A_1,B_2} \\ &+ \frac{-1}{2} \langle 0^A 0^A|\hat{g}|0^A 0^B\rangle \langle A_1|\hat{0}_\alpha^+|\hat{0}_\beta^+|\hat{0}_\beta^-|A_9\rangle \langle B_2|\hat{0}_\alpha^-|B_{11}\rangle t_{A_1,B_2} \\ &+ \frac{-1}{2} \langle 0^A 1^A|\hat{g}|1^A 0^B\rangle \langle A_1|\hat{1}_\alpha^+|\hat{1}_\beta^+|\hat{0}_\beta^-|A_9\rangle \langle B_2|\hat{0}_\alpha^-|B_{11}\rangle t_{A_1,B_2} \\ &+ \frac{-1}{2} \langle 0^A 0^B|\hat{g}|0^B 0^B\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{0}_\beta^+|\hat{0}_\beta^-|\hat{0}_\alpha^-|B_{11}\rangle t_{A_1,B_2} \\ &+ \frac{-1}{4} \langle 0^A 0^B|\hat{g}|0^B 1^B\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{1}_\alpha^+|\hat{0}_\alpha^-|B_{11}\rangle t_{A_1,B_2} \\ &+ \frac{-1}{4} \langle 0^A 0^B|\hat{g}|1^B 1^B\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{1}_\alpha^+|\hat{0}_\alpha^-|B_{11}\rangle t_{A_1,B_2} \\ &+ \frac{-1}{2} \langle 0^A 0^B|\hat{g}|1^B 1^B\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{1}_\alpha^+|\hat{0}_\alpha^-|B_{11}\rangle t_{A_1,B_2} \\ &+ \frac{1}{4} \langle 0^A 0^B|\hat{g}|1^B 1^B\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{1}_\alpha^+|\hat{0}_\alpha^-|B_{11}\rangle t_{A_1,B_2} \\ &+ \frac{1}{4} \langle 0^A 0^B|\hat{g}|1^B 1^B\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{1}_\alpha^+|\hat{0}_\alpha^-|B_{11}\rangle t_{A_1,B_2} \\ &+ \frac{1}{4} \langle 0^A 0^B|\hat{g}|1^B 1^B\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{0}_\alpha^-|B_{11}\rangle \langle I_0|\hat{0}_\alpha^+|\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_2} \\ &+ \frac{1}{4} \langle 0^A 0^B|\hat{g}|0^B 0^B\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{0}_\alpha^-|B_{11}\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^A 0^I|\hat{g}|0^B 0^I\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{0}_\alpha^-|B_{11}\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^A 1^I|\hat{g}|0^B 1^I\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{0}_\alpha^-|B_{11}\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^A 1^I|\hat{g}|0^B 1^I\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{0}_\alpha^-|B_{11}\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^A 0^B|\hat{g}|1^B 1^I\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{0}_\alpha^-|B_{11}\rangle \langle I_0|\hat{0}_\alpha^+|\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_2} \\ &+ \frac{1}{2} \langle 0^A 0^B|\hat{g}|1^B 1^B\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{0}_\alpha^-|B_{11}\rangle \langle I_0|\hat{0}_\alpha^+|\hat{0}_\alpha^-|I_0\rangle t_{A_1,B_2} \\ &+ \frac{1}{2} \langle 0^A 0^B|\hat{g}|0^A 0^B\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{0}_\alpha^-|B_{11}\rangle t_{A_1}t_{B_2} \\ &+ \frac{1}{2} \langle 0^A 0^B|\hat{g}|0^B 0^B\rangle \langle A_1|\hat{0}_\alpha^+|A_9\rangle \langle B_2|\hat{0}_\alpha^-|B_{11}\rangle t_{A_1}t_{B_2} \\ &+ \frac{1}{2} \langle 0^A 0^$$

$$\begin{split} & + \frac{-1}{2} \sum_{I} \langle 0^{A} 1^{I} | \hat{g} | 0^{B} 1^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{0} | \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{2}} \\ & + \frac{1}{2} \sum_{I} \langle 0^{A} 0^{B} | \hat{g} | 0^{I} 0^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{0} | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{2}} \\ & + \frac{1}{2} \sum_{I} \langle 0^{A} 0^{B} | \hat{g} | 1^{I} 1^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{0} | \hat{1}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{2}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})| \hat{H}| (A_1, B_3) \rangle = \\ &+ \frac{-1}{2} \langle 0^A | \hat{h} | 0^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle t_{A_1, B_3} \\ &+ \frac{-1}{2} \langle 0^A 0^A | \hat{g} | 0^A 0^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ \hat{0}_{\beta}^+ \hat{0}_{\beta}^- | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle t_{A_1, B_3} \\ &+ \frac{-1}{2} \langle 0^A 0^A | \hat{g} | 0^A 0^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle t_{A_1, B_3} \\ &+ \frac{-1}{2} \langle 0^A 0^B | \hat{g} | 0^B 0^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\beta}^+ \hat{0}_{\beta}^- \hat{0}_{\alpha}^- | B_{11} \rangle t_{A_1, B_3} \\ &+ \frac{-1}{4} \langle 0^A 0^B | \hat{g} | 0^B 1^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- \hat{0}_{\alpha}^- | B_{11} \rangle t_{A_1, B_3} \\ &+ \frac{-1}{4} \langle 0^A 0^B | \hat{g} | 1^B 1^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- \hat{0}_{\alpha}^- | B_{11} \rangle t_{A_1, B_3} \\ &+ \frac{-1}{4} \langle 0^A 0^B | \hat{g} | 1^B 1^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- \hat{0}_{\alpha}^- | B_{11} \rangle t_{A_1, B_3} \\ &+ \frac{-1}{4} \langle 0^A 0^B | \hat{g} | 1^B 1^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- \hat{0}_{\alpha}^- | B_{11} \rangle t_{A_1, B_3} \\ &+ \frac{1}{4} \langle 0^A 0^B | \hat{g} | 1^B 1^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- \hat{0}_{\alpha}^- | B_{11} \rangle t_{A_1, B_3} \\ &+ \frac{1}{4} \langle 0^A 0^B | \hat{g} | 0^B 0^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle t_{A_1, B_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_1, B_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_1, B_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_1, B_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 1^I 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_1, B_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 0^A 0^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3$$

$$\begin{split} &+\frac{1}{4}\langle 0^{A}1^{B}|\hat{g}|0^{B}1^{B}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle t_{A_{1}}t_{B_{3}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{3}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{3}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{3}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{3}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{3}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{3}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_1,)\rangle = \\ &+ \frac{-1}{2}\langle 0^A|\hat{h}|1^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle t_{B_1} \\ &+ \frac{-1}{2}\langle 0^A0^A|\hat{g}|0^A1^B\rangle\langle A_0|\hat{0}_{\alpha}^+\hat{0}_{\beta}^+\hat{0}_{\beta}^-|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle t_{B_1} \\ &+ \frac{-1}{2}\langle 0^A1^A|\hat{g}|1^A1^B\rangle\langle A_0|\hat{1}_{\alpha}^+\hat{1}_{\beta}^+\hat{0}_{\beta}^-|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle t_{B_1} \\ &+ \frac{-1}{4}\langle 0^A0^B|\hat{g}|0^B1^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_1} \\ &+ \frac{-1}{4}\langle 0^A0^B|\hat{g}|1^B0^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-\hat{1}_{\alpha}^-|B_{11}\rangle t_{B_1} \\ &+ \frac{-1}{2}\langle 0^A0^B|\hat{g}|1^B0^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-\hat{1}_{\alpha}^-|B_{11}\rangle t_{B_1} \\ &+ \frac{-1}{2}\langle 0^A0^B|\hat{g}|1^B0^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_1} \\ &+ \frac{1}{4}\langle 0^A0^B|\hat{g}|1^B0^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_1} \\ &+ \frac{1}{4}\langle 0^A0^B|\hat{g}|0^B1^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_1} \\ &+ \frac{1}{4}\langle 0^A0^B|\hat{g}|0^B1^B\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-\hat{0}_{\alpha}^-|B_{11}\rangle t_{B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^B0^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle t_{B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 0^A1^I|\hat{g}|1^B1^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{1}_{\beta}^+\hat{1}_{\alpha}^-|I_0\rangle t_{B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 0^A1^B|\hat{g}|0^I0^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{1}_{\beta}^+\hat{1}_{\alpha}^-|I_0\rangle t_{B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 0^A1^B|\hat{g}|0^I0^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 0^A1^B|\hat{g}|0^I0^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 0^A1^B|\hat{g}|0^I0^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 0^A1^B|\hat{g}|0^I0^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle t_{B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 0^A1^B|\hat{g}|0^I0^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{1}_{\alpha}^+$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1,)\rangle =$$

 $+\frac{-1}{2}\langle 0^A|\hat{h}|1^B\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_0|\hat{1}_{\alpha}^-|B_{11}\rangle t_{A_1}$

$$\begin{split} & + \frac{-1}{2} \langle 0^A 0^A | \hat{g} | 0^A 1^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ \hat{0}_{\beta}^+ \hat{0}_{\beta}^- | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle t_{A_1} \\ & + \frac{-1}{2} \langle 0^A 1^A | \hat{g} | 1^A 1^B \rangle \langle A_1 | \hat{1}_{\alpha}^+ \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle t_{A_1} \\ & + \frac{-1}{4} \langle 0^A 0^B | \hat{g} | 0^B 1^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- \hat{0}_{\alpha}^- | B_{11} \rangle t_{A_1} \\ & + \frac{-1}{4} \langle 0^A 0^B | \hat{g} | 1^B 0^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- \hat{1}_{\alpha}^- | B_{11} \rangle t_{A_1} \\ & + \frac{-1}{2} \langle 0^A 0^B | \hat{g} | 1^B 0^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{0}_{\beta}^+ \hat{0}_{\beta}^- \hat{1}_{\alpha}^- | B_{11} \rangle t_{A_1} \\ & + \frac{-1}{2} \langle 0^A 0^B | \hat{g} | 0^B 1^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{0}_{\beta}^+ \hat{0}_{\beta}^- \hat{0}_{\alpha}^- | B_{11} \rangle t_{A_1} \\ & + \frac{1}{4} \langle 0^A 0^B | \hat{g} | 1^B 0^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- \hat{0}_{\alpha}^- | B_{11} \rangle t_{A_1} \\ & + \frac{1}{4} \langle 0^A 0^B | \hat{g} | 1^B 0^B \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- \hat{1}_{\alpha}^- | B_{11} \rangle t_{A_1} \\ & + \frac{1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_0 | \hat{0}_{\beta}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_1} \\ & + \frac{1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_0 | \hat{0}_{\beta}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_1} \\ & + \frac{1}{2} \sum_{I} \langle 0^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_0 | \hat{1}_{\beta}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_1} \\ & + \frac{1}{2} \sum_{I} \langle 0^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_0 | \hat{0}_{\beta}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_1} \\ & + \frac{1}{2} \sum_{I} \langle 0^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_1} \\ & + \frac{1}{2} \sum_{I} \langle 0^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_0 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_1} \\ & + \frac{1}{2} \sum_{I} \langle 0^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1)\rangle = \\ &+ \frac{-1}{2}\langle 0^A|\hat{h}|1^B\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle t_{A_1,B_1} \\ &+ \frac{-1}{2}\langle 0^A0^A|\hat{g}|0^A1^B\rangle\langle A_1|\hat{0}_{\alpha}^+\hat{0}_{\beta}^+\hat{0}_{\beta}^-|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle t_{A_1,B_1} \\ &+ \frac{-1}{2}\langle 0^A1^A|\hat{g}|1^A1^B\rangle\langle A_1|\hat{1}_{\alpha}^+\hat{1}_{\beta}^+\hat{0}_{\beta}^-|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle t_{A_1,B_1} \\ &+ \frac{-1}{2}\langle 0^A0^B|\hat{g}|0^B1^B\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-\hat{0}_{\alpha}^-|B_{11}\rangle t_{A_1,B_1} \\ &+ \frac{-1}{4}\langle 0^A0^B|\hat{g}|1^B0^B\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-\hat{1}_{\alpha}^-|B_{11}\rangle t_{A_1,B_1} \\ &+ \frac{-1}{2}\langle 0^A0^B|\hat{g}|1^B0^B\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-\hat{1}_{\alpha}^-|B_{11}\rangle t_{A_1,B_1} \\ &+ \frac{-1}{2}\langle 0^A0^B|\hat{g}|0^B1^B\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-\hat{0}_{\alpha}^-|B_{11}\rangle t_{A_1,B_1} \\ &+ \frac{1}{4}\langle 0^A0^B|\hat{g}|1^B0^B\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-\hat{0}_{\alpha}^-|B_{11}\rangle t_{A_1,B_1} \\ &+ \frac{1}{4}\langle 0^A0^B|\hat{g}|0^B1^B\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-\hat{1}_{\alpha}^-|B_{11}\rangle t_{A_1,B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^B0^I\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle t_{A_1,B_1} \\ &+ \frac{-1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^B0^I\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle t_{A_1,B_1} \\ &+ \frac{-1}{2}\sum_{I}\langle 0^A0^I|\hat{g}|1^B0^I\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle t_{A_1,B_1} \\ &+ \frac{-1}{2}\sum_{I}\langle 0^A1^I|\hat{g}|1^B1^I\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{0}_{\alpha}^-|A_9\rangle\langle B_1|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_0|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle t_{A_1,B_1} \\ &+ \frac{-1}{2}\sum_{I}\langle 0^A1^I|\hat{g}|1^B1^I\rangle\langle A_1|\hat{0}_{\alpha}^-|A_1|\hat{0}_{\alpha}^-|A_1|\hat{0}_{\alpha}^-|A_1|\hat{0}_{\alpha}^-|A_1|\hat{0}_{\alpha$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 0^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{1},B_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{1}} \\ &+\frac{1}{2}\langle 0^{A}|\hat{h}|1^{B}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle t_{A_{1}}t_{B_{1}} \\ &+\frac{1}{2}\langle 0^{A}0^{A}|\hat{g}|0^{A}1^{B}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|\hat{A}_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle t_{A_{1}}t_{B_{1}} \\ &+\frac{1}{2}\langle 0^{A}0^{A}|\hat{g}|0^{A}1^{B}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|\hat{A}_{9}\rangle\langle B_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle t_{A_{1}}t_{B_{1}} \\ &+\frac{1}{2}\langle 0^{A}0^{B}|\hat{g}|0^{B}1^{B}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{0}_{\alpha}^{+}\hat{a}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{1}}t_{B_{1}} \\ &+\frac{1}{4}\langle 0^{A}0^{B}|\hat{g}|0^{B}1^{B}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle t_{A_{1}}t_{B_{1}} \\ &+\frac{1}{2}\langle 0^{A}0^{B}|\hat{g}|1^{B}0^{B}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle t_{A_{1}}t_{B_{1}} \\ &+\frac{1}{2}\langle 0^{A}0^{B}|\hat{g}|0^{B}1^{B}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{1}}t_{B_{1}} \\ &+\frac{1}{4}\langle 0^{A}0^{B}|\hat{g}|0^{B}1^{B}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{1}}t_{B_{1}} \\ &+\frac{1}{4}\langle 0^{A}0^{B}|\hat{g}|0^{B}1^{B}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{1}}t_{B_{1}} \\ &+\frac{1}{4}\langle 0^{A}0^{B}|\hat{g}|0^{B}1^{B}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{1}}t_{B_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2)\rangle = \\ &+ \frac{-1}{2}\langle 1^A|\hat{h}|0^B\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle t_{A_2,B_2} \\ &+ \frac{-1}{2}\langle 0^A0^A|\hat{g}|1^A0^B\rangle\langle A_2|\hat{0}^+_{\alpha}\hat{1}^+_{\beta}\hat{0}^-_{\beta}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle t_{A_2,B_2} \\ &+ \frac{-1}{2}\langle 0^A1^A|\hat{g}|0^A0^B\rangle\langle A_2|\hat{1}^+_{\alpha}\hat{0}^+_{\beta}\hat{0}^-_{\beta}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle t_{A_2,B_2} \\ &+ \frac{-1}{2}\langle 1^A0^B|\hat{g}|0^B0^B\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^+_{\beta}\hat{0}^-_{\alpha}\hat{0}^-_{\alpha}|B_{11}\rangle t_{A_2,B_2} \\ &+ \frac{-1}{4}\langle 1^A1^B|\hat{g}|0^B1^B\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}\hat{0}^-_{\alpha}|B_{11}\rangle t_{A_2,B_2} \\ &+ \frac{-1}{4}\langle 1^A0^B|\hat{g}|1^B1^B\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}\hat{1}^-_{\alpha}|B_{11}\rangle t_{A_2,B_2} \\ &+ \frac{-1}{2}\langle 1^A0^B|\hat{g}|1^B1^B\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}\hat{1}^-_{\alpha}|B_{11}\rangle t_{A_2,B_2} \\ &+ \frac{1}{4}\langle 1^A0^B|\hat{g}|1^B1^B\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}\hat{0}^-_{\alpha}|B_{11}\rangle t_{A_2,B_2} \\ &+ \frac{1}{4}\langle 1^A0^B|\hat{g}|1^B1^B\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}\hat{0}^-_{\alpha}|B_{11}\rangle t_{A_2,B_2} \end{split}$$

$$\begin{split} & + \frac{1}{4}\langle 1^A 1^B | \hat{g} | 0^B 1^B \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha \hat{1}^-_\alpha | B_{11} \rangle t_{A_2,B_2} \\ & + \frac{-1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_2,B_2} \\ & + \frac{-1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_0 | \hat{0}^+_\beta \hat{0}^-_\alpha | I_0 \rangle t_{A_2,B_2} \\ & + \frac{-1}{2} \sum_I \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_2,B_2} \\ & + \frac{-1}{2} \sum_I \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_2,B_2} \\ & + \frac{-1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 0^I 0^I \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_2,B_2} \\ & + \frac{1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 1^I 1^I \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_2,B_2} \\ & + \frac{1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 1^I 1^I \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_2,B_2} \\ & + \frac{1}{2} \langle 1^A | \hat{\mu} | 0^B \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_0 | \hat{1}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_2,B_2} \\ & + \frac{1}{2} \langle 1^A | \hat{\mu} | 0^B \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^+_\alpha | \hat{0}^-_\alpha | B_{11} \rangle t_{A_2} t_{B_2} \\ & + \frac{1}{2} \langle 1^A | 0^B | \hat{g} | 0^B | 0^B \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha | B_{11} \rangle t_{A_2} t_{B_2} \\ & + \frac{1}{4} \langle 1^A 1^B | \hat{g} | 0^B | 0^B \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha \hat{0}^-_\alpha | B_{11} \rangle t_{A_2} t_{B_2} \\ & + \frac{1}{4} \langle 1^A 0^B | \hat{g} | 1^B | 1^B \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha \hat{0}^-_\alpha | B_{11} \rangle t_{A_2} t_{B_2} \\ & + \frac{1}{4} \langle 1^A 0^B | \hat{g} | 1^B | 1^B \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha \hat{0}^-_\alpha | B_{11} \rangle t_{A_2} t_{B_2} \\ & + \frac{1}{4} \langle 1^A 0^B | \hat{g} | 0^B | 1^B \rangle \langle A_2 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{1}^+_\alpha \hat{0}^-_\alpha | B_{11} \rangle t_{A_2$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3)\rangle = \\ &+ \frac{-1}{2}\langle 1^A|\hat{h}|0^B\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle t_{A_2,B_3} \\ &+ \frac{-1}{2}\langle 0^A0^A|\hat{g}|1^A0^B\rangle\langle A_2|\hat{0}_{\alpha}^+\hat{1}_{\beta}^+\hat{0}_{\beta}^-|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle t_{A_2,B_3} \\ &+ \frac{-1}{2}\langle 0^A1^A|\hat{g}|0^A0^B\rangle\langle A_2|\hat{1}_{\alpha}^+\hat{0}_{\beta}^+\hat{0}_{\beta}^-|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle t_{A_2,B_3} \\ &+ \frac{-1}{2}\langle 1^A0^B|\hat{g}|0^B0^B\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\beta}^+\hat{0}_{\beta}^-\hat{0}_{\alpha}^-|B_{11}\rangle t_{A_2,B_3} \end{split}$$

$$\begin{split} &+\frac{1}{4}\langle 1^{A}1^{B}|\hat{g}|0^{B}1^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}\hat{g}_{\alpha}|B_{11}\rangle t_{A_{2},B_{3}} \\ &+\frac{1}{4}\langle 1^{A}0^{B}|\hat{g}|1^{B}1^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}|B_{11}\rangle t_{A_{2},B_{3}} \\ &+\frac{1}{2}\langle 1^{A}0^{B}|\hat{g}|1^{B}1^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}\hat{1}_{\alpha}|B_{11}\rangle t_{A_{2},B_{3}} \\ &+\frac{1}{4}\langle 1^{A}0^{B}|\hat{g}|1^{B}1^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{2},B_{3}} \\ &+\frac{1}{4}\langle 1^{A}1^{B}|\hat{g}|0^{B}1^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle t_{A_{2},B_{3}} \\ &+\frac{1}{4}\langle 1^{A}1^{B}|\hat{g}|0^{B}1^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle t_{A_{2},B_{3}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}} \\ &+\frac{1}{2}\langle 1^{A}|\hat{h}|0^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}} \\ &+\frac{1}{2}\langle 1^{A}0^{B}|\hat{g}|0^{A}0^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}} \\ &+\frac{1}{2}\langle 1^{A}0^{B}|\hat{g}|1^{B}1^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{2}} t_{B_{3}} \\ &+\frac{1}{2}\langle 1^{A}0^{B}|\hat{g}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_2)\rangle =$$

$$\begin{split} &+\frac{1}{2}\langle 1^{A}|\hat{h}|0^{B}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{3},B_{2}} \\ &+\frac{1}{2}\langle 0^{A}0^{A}|\hat{g}|1^{A}0^{B}\rangle\langle A_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{3},B_{2}} \\ &+\frac{1}{2}\langle 0^{A}0^{A}|\hat{g}|1^{A}0^{B}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{3},B_{2}} \\ &+\frac{1}{2}\langle 1^{A}0^{B}|\hat{g}|0^{B}0^{B}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{3},B_{2}} \\ &+\frac{1}{4}\langle 1^{A}1^{B}|\hat{g}|0^{B}1^{B}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{3},B_{2}} \\ &+\frac{1}{4}\langle 1^{A}0^{B}|\hat{g}|1^{B}1^{B}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{3},B_{2}} \\ &+\frac{1}{2}\langle 1^{A}0^{B}|\hat{g}|1^{B}1^{B}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{3},B_{2}} \\ &+\frac{1}{4}\langle 1^{A}0^{B}|\hat{g}|1^{B}1^{B}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{3},B_{2}} \\ &+\frac{1}{4}\langle 1^{A}0^{B}|\hat{g}|1^{B}1^{B}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{3},B_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{B}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3},B_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{3},B_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3},B_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3},B_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3},B_{2}} \\ &+\frac{1}{2}\langle 1^{A}0^{B}|\hat{g}|0^{B}0^{A}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}$$

$$+ \frac{1}{2} \sum_{I} \langle 1^{A} 0^{B} | \hat{g} | 1^{I} 1^{I} \rangle \langle A_{3} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{0} | \hat{1}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | I_{0} \rangle t_{A_{3}} t_{B_{2}}$$

$$\langle \langle (A_9, B_{11}) | \hat{H} | (A_3, B_3) \rangle =$$

$$+ \frac{-1}{2} \langle 1^A | \hat{h} | 0^B \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_3 | \hat{0}^-_\alpha | B_{11} \rangle t_{A_3, B_3}$$

$$+ \frac{-1}{2} \langle 0^A 0^A | \hat{g} | 1^A 0^B \rangle \langle A_3 | \hat{0}^+_\alpha | \hat{f}^+_\beta \hat{0}^-_\beta | A_9 \rangle \langle B_3 | \hat{0}^-_\alpha | B_{11} \rangle t_{A_3, B_3}$$

$$+ \frac{-1}{2} \langle 0^A 1^A | \hat{g} | 0^A 0^B \rangle \langle A_3 | \hat{1}^+_\alpha \hat{0}^+_\beta \hat{0}^-_\beta | A_9 \rangle \langle B_3 | \hat{0}^-_\alpha | B_{11} \rangle t_{A_3, B_3}$$

$$+ \frac{-1}{2} \langle 1^A 0^B | \hat{g} | 0^B 0^B \rangle \langle A_3 | \hat{1}^+_\alpha | \hat{A}^+_\beta \rangle \langle B_3 | \hat{0}^+_\beta \hat{0}^-_\beta \hat{0}^-_\alpha | B_{11} \rangle t_{A_3, B_3}$$

$$+ \frac{-1}{4} \langle 1^A 1^B | \hat{g} | 0^B 1^B \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha \hat{0}^-_\alpha | B_{11} \rangle t_{A_3, B_3}$$

$$+ \frac{-1}{4} \langle 1^A 0^B | \hat{g} | 1^B 1^B \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha \hat{0}^-_\alpha | B_{11} \rangle t_{A_3, B_3}$$

$$+ \frac{-1}{4} \langle 1^A 0^B | \hat{g} | 1^B 1^B \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha \hat{0}^-_\alpha | B_{11} \rangle t_{A_3, B_3}$$

$$+ \frac{-1}{4} \langle 1^A 0^B | \hat{g} | 1^B 1^B \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha \hat{0}^-_\alpha | B_{11} \rangle t_{A_3, B_3}$$

$$+ \frac{1}{4} \langle 1^A 0^B | \hat{g} | 1^B 1^B \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha \hat{0}^-_\alpha | B_{11} \rangle t_{A_3, B_3}$$

$$+ \frac{1}{4} \langle 1^A 1^B | \hat{g} | 0^B 1^B \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_3 | \hat{0}^-_\alpha \hat{0}^-_\alpha | B_{11} \rangle t_{A_3, B_3}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_3 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3, B_3}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_3 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3, B_3}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_3 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3, B_3}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 1^I 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_3 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_0 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3, B_3}$$

$$+ \frac{1}{2} \sum_I \langle 1^A 0^B | \hat{g} | 1^A 0^B \rangle \langle A_3 | \hat{0}^+_\alpha | \hat{0}^+_\beta \hat{0}^-_\beta | A_9 \rangle \langle B_3 | \hat{0}^-_\alpha | B_{11} \rangle t_{A_3, t_{B_3}$$

$$+ \frac{1}{2} \langle 1^A 0^B | \hat$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4)\rangle = \\ &+ \frac{-1}{2}\langle 1^A|\hat{h}|0^B\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle t_{A_5,B_4} \\ &+ \frac{1}{4}\langle 0^A1^A|\hat{g}|0^A0^B\rangle\langle A_5|\hat{0}^+_{\beta}\hat{1}^+_{\beta}\hat{0}^-_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle t_{A_5,B_4} \\ &+ \frac{1}{4}\langle 0^A0^A|\hat{g}|1^A0^B\rangle\langle A_5|\hat{1}^+_{\beta}\hat{0}^+_{\beta}\hat{0}^-_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle t_{A_5,B_4} \\ &+ \frac{1}{4}\langle 0^A0^A|\hat{g}|1^A0^B\rangle\langle A_5|\hat{0}^+_{\beta}\hat{1}^+_{\beta}\hat{0}^-_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle t_{A_5,B_4} \\ &+ \frac{-1}{4}\langle 0^A1^A|\hat{g}|0^A0^B\rangle\langle A_5|\hat{1}^+_{\beta}\hat{0}^+_{\beta}\hat{0}^-_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle t_{A_5,B_4} \\ &+ \frac{1}{2}\langle 1^A0^B|\hat{g}|0^B0^B\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^+_{\alpha}\hat{0}^-_{\beta}\hat{0}^-_{\alpha}|B_{11}\rangle t_{A_5,B_4} \\ &+ \frac{1}{2}\langle 1^A1^B|\hat{g}|0^B1^B\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^+_{\alpha}\hat{0}^-_{\beta}\hat{1}^-_{\alpha}|B_{11}\rangle t_{A_5,B_4} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|0^B1^I\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle t_{A_5,B_4} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A1^I|\hat{g}|0^B1^I\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle t_{A_5,B_4} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A0^B|\hat{g}|0^I0^I\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle t_{A_5,B_4} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A0^B|\hat{g}|0^I0^I\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle t_{A_5,B_4} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A0^B|\hat{g}|0^I0^I\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_0|\hat{0}^+_{\beta}\hat{0}^-_{\alpha}|I_0\rangle t_{A_5,B_4} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|0^B0^I\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_0|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle t_{A_5,B_4} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|0^B0^I\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_0|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle t_{A_5,B_4} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A1^I|\hat{g}|0^B1^I\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_0|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_5,B_4} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A1^I|\hat{g}|0^B1^I\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_0|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_5,B_4} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A1^I|\hat{g}|0^B1^I\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_0|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|I$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},)\rangle = \\ &+ \frac{-1}{2}\langle 1^{A}|\hat{h}|1^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle t_{A_{2}} \\ &+ \frac{-1}{2}\langle 0^{A}0^{A}|\hat{g}|1^{A}1^{B}\rangle\langle A_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle t_{A_{2}} \\ &+ \frac{-1}{2}\langle 0^{A}1^{A}|\hat{g}|0^{A}1^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle t_{A_{2}} \\ &+ \frac{-1}{4}\langle 1^{A}0^{B}|\hat{g}|0^{B}1^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_{2}} \\ &+ \frac{-1}{4}\langle 1^{A}0^{B}|\hat{g}|1^{B}0^{B}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle t_{A_{2}} \end{split}$$

$$\begin{split} & + \frac{-1}{2} \langle 1^A 0^B | \hat{g} | 1^B 0^B \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{0}^+_{\beta} \hat{0}^-_{\beta} \hat{1}^-_{\alpha} | B_{11} \rangle t_{A_2} \\ & + \frac{-1}{2} \langle 1^A 0^B | \hat{g} | 0^B 1^B \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^+_{\beta} \hat{0}^-_{\beta} \hat{0}^-_{\alpha} | B_{11} \rangle t_{A_2} \\ & + \frac{1}{4} \langle 1^A 0^B | \hat{g} | 1^B 0^B \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{0}^+_{\alpha} \hat{1}^-_{\alpha} \hat{0}^-_{\alpha} | B_{11} \rangle t_{A_2} \\ & + \frac{1}{4} \langle 1^A 0^B | \hat{g} | 0^B 1^B \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} \hat{1}^-_{\alpha} | B_{11} \rangle t_{A_2} \\ & + \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_0 | \hat{0}^+_{\beta} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_2} \\ & + \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_0 | \hat{0}^+_{\beta} \hat{0}^-_{\beta} | I_0 \rangle t_{A_2} \\ & + \frac{-1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_0 | \hat{1}^+_{\beta} \hat{1}^-_{\alpha} | I_0 \rangle t_{A_2} \\ & + \frac{-1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_0 | \hat{0}^+_{\beta} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_2} \\ & + \frac{1}{2} \sum_{I} \langle 1^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_0 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_2} \\ & + \frac{1}{2} \sum_{I} \langle 1^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_0 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_2} \\ & + \frac{1}{2} \sum_{I} \langle 1^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_0 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_2} \\ & + \frac{1}{2} \sum_{I} \langle 1^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_0 | \hat{1}^+_{\alpha} \hat{1}^-_{\alpha} | I_0 \rangle t_{A_2} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1)\rangle = \\ &+ \frac{-1}{2}\langle 1^A|\hat{h}|1^B\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_1|\hat{1}^-_\alpha|B_{11}\rangle t_{A_2,B_1} \\ &+ \frac{-1}{2}\langle 0^A0^A|\hat{g}|1^A1^B\rangle\langle A_2|\hat{0}^+_\alpha\hat{1}^+_\beta\hat{0}^-_\beta|A_9\rangle\langle B_1|\hat{1}^-_\alpha|B_{11}\rangle t_{A_2,B_1} \\ &+ \frac{-1}{2}\langle 0^A1^A|\hat{g}|0^A1^B\rangle\langle A_2|\hat{1}^+_\alpha\hat{0}^+_\beta\hat{0}^-_\beta|A_9\rangle\langle B_1|\hat{1}^-_\alpha|B_{11}\rangle t_{A_2,B_1} \\ &+ \frac{-1}{4}\langle 1^A0^B|\hat{g}|0^B1^B\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_1|\hat{0}^+_\alpha\hat{1}^-_\alpha\hat{0}^-_\alpha|B_{11}\rangle t_{A_2,B_1} \\ &+ \frac{-1}{4}\langle 1^A0^B|\hat{g}|1^B0^B\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha\hat{1}^-_\alpha|B_{11}\rangle t_{A_2,B_1} \\ &+ \frac{-1}{2}\langle 1^A0^B|\hat{g}|1^B0^B\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha\hat{1}^-_\alpha|B_{11}\rangle t_{A_2,B_1} \\ &+ \frac{-1}{2}\langle 1^A0^B|\hat{g}|0^B1^B\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_1|\hat{0}^+_\beta\hat{0}^-_\beta\hat{1}^-_\alpha|B_{11}\rangle t_{A_2,B_1} \\ &+ \frac{1}{4}\langle 1^A0^B|\hat{g}|0^B1^B\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_1|\hat{0}^+_\alpha\hat{1}^-_\alpha\hat{0}^-_\alpha|B_{11}\rangle t_{A_2,B_1} \\ &+ \frac{1}{4}\langle 1^A0^B|\hat{g}|0^B1^B\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha\hat{1}^-_\alpha|B_{11}\rangle t_{A_2,B_1} \\ &+ \frac{1}{4}\langle 1^A0^B|\hat{g}|0^B1^B\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_1|\hat{0}^+_\alpha\hat{0}^-_\alpha\hat{1}^-_\alpha|B_{11}\rangle t_{A_2,B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|1^B0^I\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_1|\hat{1}^-_\alpha|B_{11}\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A1^I|\hat{g}|1^B1^I\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_1|\hat{1}^-_\alpha|B_{11}\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A1^I|\hat{g}|1^B1^I\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_1|\hat{1}^-_\alpha|B_{11}\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A1^B|\hat{g}|0^I0^I\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_1|\hat{1}^-_\alpha|B_{11}\rangle\langle I_0|\hat{0}^+_\alpha\hat{0}^-_\alpha|I_0\rangle t_{A_2,B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A1^B|\hat{g}|1^I1^I\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle B_1|\hat{1}^-_\alpha|B_{11}\rangle\langle I_0|\hat{1}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_2,B_1} \\ &+ \frac{1}{2}\sum_{I}\langle 1^A1^B|\hat{g}|0^I\partial_1^I\rangle\langle$$

$$\begin{split} & + \frac{-1}{2} \langle 0^{A}0^{A} | \hat{g} | 1^{A}1^{B} \rangle \langle A_{2} | \hat{0}_{\alpha}^{+} \hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} | A_{9} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle t_{A_{2}} t_{B_{1}} \\ & + \frac{-1}{2} \langle 0^{A}1^{A} | \hat{g} | 0^{A}1^{B} \rangle \langle A_{2} | \hat{1}_{\alpha}^{+} \hat{0}_{\beta}^{+} \hat{0}_{\beta}^{-} | A_{9} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle t_{A_{2}} t_{B_{1}} \\ & + \frac{-1}{4} \langle 1^{A}0^{B} | \hat{g} | 0^{B}1^{B} \rangle \langle A_{2} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{-} \hat{0}_{\alpha}^{-} | B_{11} \rangle t_{A_{2}} t_{B_{1}} \\ & + \frac{-1}{4} \langle 1^{A}0^{B} | \hat{g} | 1^{B}0^{B} \rangle \langle A_{2} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} \hat{1}_{\alpha}^{-} | B_{11} \rangle t_{A_{2}} t_{B_{1}} \\ & + \frac{-1}{2} \langle 1^{A}0^{B} | \hat{g} | 1^{B}0^{B} \rangle \langle A_{2} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{0}_{\beta}^{+} \hat{0}_{\beta}^{-} \hat{1}_{\alpha}^{-} | B_{11} \rangle t_{A_{2}} t_{B_{1}} \\ & + \frac{-1}{2} \langle 1^{A}0^{B} | \hat{g} | 0^{B}1^{B} \rangle \langle A_{2} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} \hat{0}_{\alpha}^{-} | B_{11} \rangle t_{A_{2}} t_{B_{1}} \\ & + \frac{-1}{2} \langle 1^{A}0^{B} | \hat{g} | 0^{B}1^{B} \rangle \langle A_{2} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{-} \hat{0}_{\alpha}^{-} | B_{11} \rangle t_{A_{2}} t_{B_{1}} \\ & + \frac{1}{4} \langle 1^{A}0^{B} | \hat{g} | 0^{B}1^{B} \rangle \langle A_{2} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} \hat{1}_{\alpha}^{-} | B_{11} \rangle t_{A_{2}} t_{B_{1}} \\ & + \frac{1}{2} \sum_{I} \langle 1^{A}0^{I} | \hat{g} | 1^{B}0^{I} \rangle \langle A_{2} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{0} | \hat{0}_{\beta}^{+} \hat{0}_{\beta}^{-} | I_{0} \rangle t_{A_{2}} t_{B_{1}} \\ & + \frac{1}{2} \sum_{I} \langle 1^{A}1^{I} | \hat{g} | 1^{B}1^{I} \rangle \langle A_{2} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{0} | \hat{0}_{\beta}^{+} \hat{0}_{\beta}^{-} | I_{0} \rangle t_{A_{2}} t_{B_{1}} \\ & + \frac{1}{2} \sum_{I} \langle 1^{A}1^{I} | \hat{g} | 1^{B}1^{I} \rangle \langle A_{2} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{0} | \hat{0}_{\beta}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{A_{2}} t_{B_{1}} \\ & + \frac{1}{2} \sum_{I} \langle 1^{A}1^{B} | \hat{g} | 0^{I}0^{I} \rangle \langle A_{2} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{0} | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{A_{2}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,)\rangle = \\ &+ \frac{-1}{2}\langle 1^A|\hat{h}|1^B\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle t_{A_3} \\ &+ \frac{-1}{2}\langle 0^A0^A|\hat{g}|1^A1^B\rangle\langle A_3|\hat{0}^+_{\alpha}\hat{1}^+_{\beta}\hat{0}^-_{\beta}|A_9\rangle\langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle t_{A_3} \\ &+ \frac{-1}{2}\langle 0^A1^A|\hat{g}|0^A1^B\rangle\langle A_3|\hat{1}^+_{\alpha}\hat{0}^+_{\beta}\hat{0}^-_{\beta}|A_9\rangle\langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle t_{A_3} \\ &+ \frac{-1}{4}\langle 1^A0^B|\hat{g}|0^B1^B\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}\hat{0}^-_{\alpha}|B_{11}\rangle t_{A_3} \\ &+ \frac{-1}{4}\langle 1^A0^B|\hat{g}|1^B0^B\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}\hat{1}^-_{\alpha}|B_{11}\rangle t_{A_3} \\ &+ \frac{-1}{2}\langle 1^A0^B|\hat{g}|1^B0^B\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}\hat{1}^-_{\alpha}|B_{11}\rangle t_{A_3} \\ &+ \frac{-1}{2}\langle 1^A0^B|\hat{g}|0^B1^B\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}\hat{0}^-_{\alpha}|B_{11}\rangle t_{A_3} \\ &+ \frac{1}{4}\langle 1^A0^B|\hat{g}|1^B0^B\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}\hat{0}^-_{\alpha}|B_{11}\rangle t_{A_3} \\ &+ \frac{1}{4}\langle 1^A0^B|\hat{g}|0^B1^B\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}\hat{1}^-_{\alpha}|B_{11}\rangle t_{A_3} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|1^B0^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_0|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle t_{A_3} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|1^B0^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle t_{A_3} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|1^B0^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle t_{A_3} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^A1^I|\hat{g}|1^B1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle t_{A_3} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^A1^I|\hat{g}|1^B1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_0|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle t_{A_3} \end{split}$$

$$\begin{split} &+ \frac{-1}{2} \sum_{I} \langle 1^{A} 1^{I} | \hat{g} | 1^{B} 1^{I} \rangle \langle A_{3} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{0} | \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} | I_{0} \rangle t_{A_{3}} \\ &+ \frac{1}{2} \sum_{I} \langle 1^{A} 1^{B} | \hat{g} | 0^{I} 0^{I} \rangle \langle A_{3} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{0} | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{A_{3}} \\ &+ \frac{1}{2} \sum_{I} \langle 1^{A} 1^{B} | \hat{g} | 1^{I} 1^{I} \rangle \langle A_{3} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{0} | \hat{1}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | I_{0} \rangle t_{A_{3}} \end{split}$$

$$\langle (A_9, B_{11})| \hat{H} | (A_3, B_1) \rangle =$$

$$+ \frac{-1}{2} \langle 1^A | \hat{h} | 1^B \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \rangle t_{A_3, B_1}$$

$$+ \frac{-1}{2} \langle 0^A 0^A | \hat{g} | 1^A 1^B \rangle \langle A_3 | \hat{0}^+_{\alpha} \hat{1}^+_{\beta} \hat{0}^-_{\beta} | A_9 \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \rangle t_{A_3, B_1}$$

$$+ \frac{-1}{2} \langle 0^A 1^A | \hat{g} | 0^A 1^B \rangle \langle A_3 | \hat{1}^+_{\alpha} | \hat{0}^+_{\beta} \hat{0}^-_{\beta} | A_9 \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \rangle t_{A_3, B_1}$$

$$+ \frac{-1}{4} \langle 1^A 0^B | \hat{g} | 0^B 1^B \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_1 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | B_{11} \rangle t_{A_3, B_1}$$

$$+ \frac{-1}{4} \langle 1^A 0^B | \hat{g} | 1^B 0^B \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_1 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} \hat{1}^-_{\alpha} | B_{11} \rangle t_{A_3, B_1}$$

$$+ \frac{-1}{2} \langle 1^A 0^B | \hat{g} | 1^B 0^B \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_1 | \hat{0}^+_{\beta} \hat{0}^-_{\beta} \hat{1}^-_{\alpha} | B_{11} \rangle t_{A_3, B_1}$$

$$+ \frac{-1}{2} \langle 1^A 0^B | \hat{g} | 0^B 1^B \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_1 | \hat{0}^+_{\beta} \hat{0}^-_{\beta} \hat{1}^-_{\alpha} | B_{11} \rangle t_{A_3, B_1}$$

$$+ \frac{1}{4} \langle 1^A 0^B | \hat{g} | 0^B 1^B \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_1 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | B_{11} \rangle t_{A_3, B_1}$$

$$+ \frac{1}{4} \langle 1^A 0^B | \hat{g} | 0^B 1^B \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_1 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | B_{11} \rangle t_{A_3, B_1}$$

$$+ \frac{1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_1 | \hat{1}^+_{\alpha} | B_{11} \rangle \langle I_0 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3, B_1}$$

$$+ \frac{1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_0 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3, B_1}$$

$$+ \frac{1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_0 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3, B_1}$$

$$+ \frac{1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_0 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3, B_1}$$

$$+ \frac{1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_0 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3, B_1}$$

$$+ \frac{1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat$$

$$\begin{split} &+\frac{1}{4}\langle 1^{A}0^{B}|\hat{g}|0^{B}1^{B}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle t_{A_{3}}t_{B_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{0}|\hat{1}_{\alpha}^{+}|A_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_6,B_{15})\rangle = \\ &+ \frac{1}{2}\langle 0^A|\hat{h}|1^B\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{1}_\beta^+|B_{11}\rangle t_{A_6,B_{15}} \\ &+ \frac{1}{4}\langle 0^A0^B|\hat{g}|0^B1^B\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{0}_\beta^-|B_{11}\rangle t_{A_6,B_{15}} \\ &+ \frac{1}{4}\langle 0^A0^B|\hat{g}|1^B0^B\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|B_{11}\rangle t_{A_6,B_{15}} \\ &+ \frac{-1}{4}\langle 0^A0^B|\hat{g}|1^B0^B\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{0}_\beta^+\hat{1}_\beta^+\hat{0}_\beta^-|B_{11}\rangle t_{A_6,B_{15}} \\ &+ \frac{-1}{2}\langle 0^A0^B|\hat{g}|1^B0^B\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{0}_\alpha^+\hat{1}_\beta^+\hat{0}_\alpha^-|B_{11}\rangle t_{A_6,B_{15}} \\ &+ \frac{-1}{4}\langle 0^A0^B|\hat{g}|0^B1^B\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{1}_\beta^+\hat{0}_\beta^+\hat{0}_\beta^-|B_{11}\rangle t_{A_6,B_{15}} \\ &+ \frac{-1}{2}\langle 0^A1^B|\hat{g}|1^B1^B\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{1}_\alpha^+\hat{1}_\beta^+\hat{1}_\alpha^-|B_{11}\rangle t_{A_6,B_{15}} \\ &+ \frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B0^I\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{1}_\beta^+|B_{11}\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_6,B_{15}} \\ &+ \frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|1^B1^I\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{1}_\beta^+|B_{11}\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_6,B_{15}} \\ &+ \frac{1}{2}\sum_I\langle 0^A1^B|\hat{g}|0^I0^I\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{1}_\beta^+|B_{11}\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_6,B_{15}} \\ &+ \frac{1}{2}\sum_I\langle 0^A1^B|\hat{g}|1^I1^I\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{1}_\beta^+|B_{11}\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_6,B_{15}} \\ &+ \frac{1}{2}\sum_I\langle 0^A1^B|\hat{g}|1^I1^I\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{1}_\beta^+|B_{11}\rangle\langle I_0|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle t_{A_6,B_{15}} \\ &+ \frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B0^I\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{1}_\beta^+|B_{11}\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_6,B_{15}} \\ &+ \frac{1}{2}\sum_I\langle 0^A0^I|\hat{g}|1^B0^I\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{1}_\beta^+|B_{11}\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_6,B_{15}} \\ &+ \frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|1^B1^I\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{1}_\beta^+|B_{11}\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_6,B_{15}} \\ &+ \frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|1^B1^I\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{1}_\beta^+|B_{11}\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_6,B_{15}} \\ &+ \frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|1^B1^I\rangle\langle A_6|\hat{0}_\beta^-|A_9\rangle\langle B_{15}|\hat{1}_\beta^+|B_{11}\rangle\langle I_0|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle t_{A_6,B_{15}} \\ &+ \frac{1}{2}\sum_I\langle 0^A1^I|\hat{g}|1$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{13},B_8)\rangle = \\ &+ \frac{1}{2}\langle 0^A 1^A |\hat{g}|0^B 0^B \rangle \langle A_{13}|\hat{0}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle B_8|\hat{0}_{\beta}^- \hat{0}_{\alpha}^- |B_{11}\rangle t_{A_{13},B_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{11},B_9)\rangle = \\ &+ \tfrac{1}{4}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_{11}|\hat{0}_\alpha^+\hat{1}_\alpha^+|A_9\rangle\langle B_9|\hat{1}_\alpha^-\hat{0}_\alpha^-|B_{11}\rangle t_{A_{11},B_9} \\ &+ \tfrac{1}{4}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_{11}|\hat{0}_\alpha^+\hat{1}_\alpha^+|A_9\rangle\langle B_9|\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\rangle t_{A_{11},B_9} \\ &+ \tfrac{1}{4}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle\langle A_{11}|\hat{1}_\alpha^+\hat{0}_\alpha^+|A_9\rangle\langle B_9|\hat{1}_\alpha^-\hat{0}_\alpha^-|B_{11}\rangle t_{A_{11},B_9} \\ &+ \tfrac{1}{4}\langle 0^A 1^A|\hat{g}|0^B 1^B\rangle\langle A_{11}|\hat{1}_\alpha^+\hat{0}_\alpha^+|A_9\rangle\langle B_9|\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\rangle t_{A_{11},B_9} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_{13}, B_7)\rangle =$$

$$+\frac{1}{2}\langle 0^A 1^A |\hat{g}|1^B 0^B \rangle \langle A_{13}|\hat{0}^+_{\alpha} \hat{1}^+_{\beta} |A_9\rangle \langle B_7|\hat{0}^-_{\beta} \hat{1}^-_{\alpha} |B_{11}\rangle t_{A_{13}, B_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},B_8)\rangle = \\ &+ \tfrac{1}{2}\langle 1^A 1^A |\hat{g}|0^B 0^B \rangle \langle A_{14}|\hat{1}_\alpha^+ \hat{1}_\beta^+ |A_9\rangle \langle B_8|\hat{0}_\beta^- \hat{0}_\alpha^- |B_{11}\rangle t_{A_{14},B_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},B_7)\rangle = \\ &+ \tfrac{1}{2} \langle 1^A 1^A |\hat{g}|0^B 1^B \rangle \langle A_{14}|\hat{1}^+_\alpha \hat{1}^+_\beta |A_9\rangle \langle B_7|\hat{0}^-_\beta \hat{1}^-_\alpha |B_{11}\rangle t_{A_{14},B_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_{12})\rangle = \\ &+ \frac{1}{2}\langle 0^A 0^B|\hat{g}|1^A 1^B\rangle \langle A_{10}|\hat{1}^+_\beta \hat{0}^-_\beta |A_9\rangle \langle B_{12}|\hat{1}^+_\beta \hat{0}^-_\beta |B_{11}\rangle t_{A_{10},B_{12}} \\ &+ \frac{-1}{2}\langle 0^A 1^A|\hat{g}|1^B 0^B\rangle \langle A_{10}|\hat{1}^+_\beta \hat{0}^-_\beta |A_9\rangle \langle B_{12}|\hat{1}^+_\beta \hat{0}^-_\beta |B_{11}\rangle t_{A_{10},B_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_7,B_{14})\rangle = \\ &+ \frac{-1}{2}\langle 0^A 0^A|\hat{g}|0^B 1^B\rangle \langle A_7|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{-}|A_9\rangle \langle B_{14}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|B_{11}\rangle t_{A_7,B_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_7, B_{13})\rangle =$$

$$+ \tfrac{-1}{2} \langle 0^A 0^A | \hat{g} | 1^B 1^B \rangle \langle A_7 | \hat{0}_\alpha^+ \hat{0}_\beta^- | A_9 \rangle \langle B_{13} | \hat{1}_\beta^+ \hat{1}_\alpha^- | B_{11} \rangle t_{A_7, B_{13}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_8, B_{14})\rangle =$$

$$+ \frac{-1}{2} \langle 0^A 1^A |\hat{g}| 1^B 0^B \rangle \langle A_8 |\hat{1}_{\alpha}^+ \hat{0}_{\beta}^- |A_9 \rangle \langle B_{14} |\hat{1}_{\beta}^+ \hat{0}_{\alpha}^- |B_{11} \rangle t_{A_8, B_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_8,B_{13})\rangle = \\ &+ \frac{-1}{2}\langle 0^A 1^A |\hat{g}|1^B 1^B \rangle \langle A_8 |\hat{1}_{\alpha}^{+}\hat{0}_{\beta}^{-}|A_9 \rangle \langle B_{13}|\hat{1}_{\beta}^{+}\hat{1}_{\alpha}^{-}|B_{11} \rangle t_{A_8,B_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_1,J_{12},K_9)\rangle = \\ &+\frac{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_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_1}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_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_9,B_{11}}t_{I_1}t_{J_{12},K_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^J0^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_9,B_{11}}t_{I_1}t_{J_{12},K_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^J|\hat{g}|0^J0^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_9,B_{11}}t_{I_1}t_{J_{12},K_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{1}_{\beta}^{+}\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_9,B_{11}}t_{I_1}t_{J_{12},K_9} \\ &+\frac{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_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{12},K_9} \\ &+\frac{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}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{12},K_9} \\ &+\frac{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_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{12}}t_{B_{11},K_9}t_{I_1} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^J0^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_9,J_{12}}t_{B_{11},K_9}t_{I_1} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^J0^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_9,J_{12}}t_{B_{11},K_9}t_{I_1} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^J0^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_9,J_{12}}t_{B_{11},K_9}t_{I_1} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^J0^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$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{1},J_{14},K_{7})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|0^{I}0^{K}\rangle \langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{14},K_{7}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|0^{I}0^{K}\rangle \langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{14},K_{7}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{14},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{14},K_{7}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{14},K_{7}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_1,J_{12},K_{10})\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_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{12},K_{10}} \\ &+ \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_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{12},K_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^J 1^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_9,B_{11}}t_{I_1}t_{J_{12},K_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^J 1^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_9,B_{11}}t_{I_1}t_{J_{12},K_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^J 1^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_9,B_{11}}t_{I_1}t_{J_{12},K_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^J 1^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_9,B_{11}}t_{I_1}t_{J_{12},K_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^J 1^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_9,J_{12}}t_{B_{11},K_{10}}t_{I_1} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^J 1^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_9,J_{12}}t_{B_{11},K_{10}}t_{I_1} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^J 1^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_9,J_{12}}t_{B_{11},K_{10}}t_{I_1} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^J 1^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_9,J_{12}}t_{B_{11},K_{10}}t_{I_1} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^J 1^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_9,J_{12}}t_{B_{11},K_{10}}t_{I_1} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{1},J_{14},K_{8})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{14},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{14},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{14},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{14},K_{8}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{14},K_{8}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{14},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_{A_9,B_{11}}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_{A_9,J_{12}}t_{B_{11},K_9}t_{I_2} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\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_9,J_{12}}t_{B_{11},K_9}t_{I_2} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|0^J0^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_9,J_{12}}t_{B_{11},K_9}t_{I_2} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|0^J0^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_9,J_{12}}t_{B_{11},K_9}t_{I_2} \\ &+\frac{1}{12}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|1^J0^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_{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}t_{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_9,B_{11}}t_{I_3}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_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_9,B_{11}}t_{I_3}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_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_9,B_{11}}t_{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{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_9,B_{11}}t_{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{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_9,B_{11}}t_{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{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_9,B_{11}}t_{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{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_9,J_{12}}t_{B_{11},K_9}t_{I_3} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^I|\hat{g}|0^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_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{12}}t_{B_{11},K_9}t_{I_3} \\ &+\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_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{12}}t_{B_{11},K_9}t_{I_3} \\ &+\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}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{12}}t_{B_{11},K_9}t_{I_3} \\ &+\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}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_9|\hat{0}_{\alpha}^{-}|K_0$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{2},J_{14},K_{7})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{14},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{14},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{14},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{14},K_{7}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{14},K_{7}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{A_{9}}t_{A_{9},B_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}1^{K}|\hat{0}_{K}|\hat$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{3},J_{14},K_{7})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{14},K_{7}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{14},K_{7}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{14},K_{7}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{14},K_{7}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{14},K_{7}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_2,J_{12},K_{10})\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}_{\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_9,B_{11}}t_{I_2}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_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_9,B_{11}}t_{I_2}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_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_9,B_{11}}t_{I_2}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_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_9,B_{11}}t_{I_2}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_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_9,B_{11}}t_{I_2}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_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_9,B_{11}}t_{I_2}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_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_9,J_{12}}t_{B_{11},K_{10}}t_{I_2}\\ &+ \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_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{12}}t_{B_{11},K_{10}}t_{I_2}\\ &+ \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_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{12}}t_{B_{11},K_{10}}t_{I_2}\\ &+ \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_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{12}}t_{B_{11},K_{10}}t_{I_2}\\ &+ \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}^{+}|I_0\rangle\langle I_1|\hat{0}_{\alpha}^{+}|I_0\rangle\langle I_1|\hat{0}_{\alpha}^{+}|I_0\rangle\langle I_1|\hat{0}_{\alpha}^{+}|I_0\rangle\langle I_1|\hat{0}_{\alpha}^{+}|I_0\rangle\langle I_1|\hat{0}_{\alpha}^{+}|I_0\rangle\langle I_1|\hat{0}_{\alpha}^{+}|I_0\rangle\langle I_1|\hat{0}_{\alpha}^{+}|I$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{10}}t_{I_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{10}}t_{I_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{10}}t_{I_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{10}}t_{I_{2}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_3,J_{12},K_{10})\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}_{\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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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{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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_{A_9,B_{11}}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_{A_9,J_{12}}t_{B_{11},K_{10}}t_{I_3}\\ &+\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$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{2},J_{14},K_{8})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{14},K_{8}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{14},K_{8}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{14},K_{8}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{14},K_{8}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{14},K_{8}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{14},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{3},J_{14},K_{8})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{14},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{14},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{14},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{14},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{14},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{14},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}1^{K}|1^{K}|1^{K}|1^{K}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_1,J_{11},K_9)\rangle = \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{11},K_9} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{11},K_9} \\ &+\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}_{\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_9,B_{11}}t_{I_1}t_{J_{11},K_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^J 0^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_9,B_{11}}t_{I_1}t_{J_{11},K_9} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{11},K_9} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{11},K_9} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_9}t_{I_1} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_9}t_{I_1} \\ &+\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}_{\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_9,J_{11}}t_{B_{11},K_9}t_{I_1} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_9}t_{I_1} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_9}t_{I_1} \\ &+\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$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{1},J_{13},K_{7})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{13},K_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{13},K_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{13},K_{7}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{13},K_{7}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{13},K_{7}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{13},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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^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_9,B_{11}}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_9,B_{11}}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}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}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_{A_9,J_{11}}t_{B_{11},K_{10}}t_{I_1}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\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_9,J_{11}}t_{B_{11},K_{10}}t_{I_1}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\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_9,J_{11}}t_{B_{11},K_{10}}t_{I_1}\\ &+\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_9,J_{11}}t_{B_{11},K_{10}}t_{I_1}\\ &+\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_9,J_{11}}t_{B_{11},K_{10}}t_{I_1}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|0^I 1^K\rangle\langle$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{1},J_{13},K_{8})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{13},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{13},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{13},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{13},K_{8}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{13},K_{8}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{13},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_2,J_{11},K_9)\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}_{\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_9,B_{11}}t_{I_2}t_{J_{11},K_9} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{11},K_9} \\ &+\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{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_9,B_{11}}t_{I_2}t_{J_{11},K_9} \\ &+\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{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_9,B_{11}}t_{I_2}t_{J_{11},K_9} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{11},K_9} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{11},K_9} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_9}t_{I_2} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_9}t_{I_2} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_9}t_{I_2} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_9}t_{I_2} \\ &+\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}_{\alpha}^{-}|I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle \langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_9}t_{I_2} \\ &+\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$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_3,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_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_9,B_{11}}t_{I_3}t_{J_{11},K_9}}{t_{I_1}} \\ &+\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{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_9,B_{11}}t_{I_3}t_{J_{11},K_9}}{t_{I_1}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^I|\hat{g}|0^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_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{11},K_9}}{t_{I_1}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^I|\hat{g}|1^J0^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_9,B_{11}}t_{I_3}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_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_9,B_{11}}t_{I_3}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_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_9,B_{11}}t_{I_3}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_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_9,J_{11}}t_{B_{11},K_9}t_{I_3} \\ &+\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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_9}t_{I_3} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|1^J0^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_9,J_{11}}t_{B_{11},K_9}t_{I_3} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_3|\hat{0}_{\beta}^{+}\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_9,J_{11}}t_{B_{11},K_9}t_{I_3} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_3|\hat{0}_{\beta}^{+}\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_9,J_{11}}t_{B_{11},K_9}t_{I_3} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|1^J0^K\rangle\langle I_3|\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_1|\hat{1}_{\alpha}^$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{2},J_{13},K_{7})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{13},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{13},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{13},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{13},K_{7}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{13},K_{7}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{13},K_{7}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|1^{J}0^{K}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_3,J_{13},K_7)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle\langle K_7|\hat{0}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{13},K_7}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle\langle K_7|\hat{0}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{13},K_7}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle\langle K_7|\hat{0}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{13},K_7}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^I 0^K\rangle\langle I_3|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle\langle K_7|\hat{0}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{13},K_7}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^I|\hat{g}|0^K 1^J\rangle\langle I_3|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle\langle K_7|\hat{0}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{13},K_7}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_3|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle\langle K_7|\hat{0}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{13},K_7}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^I|\hat{g}|1^J 0^K\rangle\langle I_3|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle\langle K_7|\hat{0}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{13},K_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_2,J_{11},K_{10})\rangle = \\ &+ \frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{11},K_{10}}\\ &+ \frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{11},K_{10}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^I|\hat{g}|1^K 1^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_9,B_{11}}t_{I_2}t_{J_{11},K_{10}}\\ &+ \frac{-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}_{\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_9,B_{11}}t_{I_2}t_{J_{11},K_{10}}\\ &+ \frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{11},K_{10}}\\ &+ \frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_{10}}t_{I_2}\\ &+ \frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_{10}}t_{I_2}\\ &+ \frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_{10}}t_{I_2}\\ &+ \frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_{10}}t_{I_2}\\ &+ \frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_{10}}t_{I_2}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^K 1^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_9,J_{11}}t_{B_{11},K_{10}}t_{I_2}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},K_{10}}t_{I_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},K_{10}}t_{I_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},K_{10}}t_{I_{2}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_3,J_{11},K_{10})\rangle = \\ &+\frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{11},K_{10}} \\ &+\frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{11},K_{10}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^I|\hat{g}|1^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_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{11},K_{10}} \\ &+\frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{11},K_{10}} \\ &+\frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{11},K_{10}} \\ &+\frac{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}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{11},K_{10}} \\ &+\frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_{10}}t_{I_3} \\ &+\frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_{10}}t_{I_3} \\ &+\frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_{10}}t_{I_3} \\ &+\frac{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_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_{10}}t_{I_3} \\ &+\frac{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}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},K_{10}}t_{I_3} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_2,J_{13},K_8)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle\langle K_8|\hat{1}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{13},K_8}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle\langle K_8|\hat{1}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{13},K_8}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle\langle K_8|\hat{1}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{13},K_8}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^I 1^K\rangle\langle I_2|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle\langle K_8|\hat{1}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{13},K_8}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^I|\hat{g}|1^K 1^J\rangle\langle I_2|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle\langle K_8|\hat{1}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{13},K_8}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^I|\hat{g}|1^J 1^K\rangle\langle I_2|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle\langle K_8|\hat{1}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{3},J_{13},K_{8})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{13},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{13},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{13},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{13},K_{8}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{13},K_{8}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{13},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}t_{J1}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_9,B_{11}}t_{J1}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_9,B_{11}}t_{J1}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_9,B_{11}}t_{J1}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_9,B_{11}}t_{J1}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_9,B_{11}}t_{J1}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_9,B_{11}}t_{J1}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_9,I_{12}}t_{B_{11},K_9}t_{J1}\\ &+\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{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{1},K_{7})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|0^{J}0^{K}\rangle \langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle \langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{14},K_{7}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}1^{J}|\hat{g}|1^{J}0^{K}\rangle \langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle \langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{14},K_{7}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|0^{K}0^{J}\rangle \langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle \langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{14},K_{7}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}1^{J}|\hat{g}|0^{K}1^{J}\rangle \langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle \langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{14},K_{7}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{J}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{14},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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}_{\beta}^{-}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}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_{A_9,B_{11}}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_{A_9,I_{12}}t_{B_{11},K_{10}}t_{J_1}\\ &+ \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_9,I_{12}}t_{B_{11},K_{10}}t_{J_1}\\ &+ \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}_{\beta}^{-}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,I_{12}}t_{B_{11},K_{10}}t_{J_1}\\ &+ \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{0}_{\alpha}^{+}|I_0\rangle\langle J_1|\hat{0}_{\alpha}^{+}|I_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,I_{12}}t_{B_{11},K_{10}}t_{J_1}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_1,K_8)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^J |\hat{g}|0^J 1^K \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_1|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|J_0 \rangle \langle K_8|\hat{1}^-_{\beta}|K_0 \rangle t_{A_9,B_{11}} t_{J_1} t_{I_{14},K_8} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 1^J |\hat{g}|1^J 1^K \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_1|\hat{1}^+_{\beta}\hat{1}^-_{\beta}|J_0 \rangle \langle K_8|\hat{1}^-_{\beta}|K_0 \rangle t_{A_9,B_{11}} t_{J_1} t_{I_{14},K_8} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^J |\hat{g}|1^K 0^J \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_1|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|J_0 \rangle \langle K_8|\hat{1}^-_{\beta}|K_0 \rangle t_{A_9,B_{11}} t_{J_1} t_{I_{14},K_8} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 1^J |\hat{g}|1^K 1^J \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_1|\hat{1}^+_{\beta}\hat{1}^-_{\beta}|J_0 \rangle \langle K_8|\hat{1}^-_{\beta}|K_0 \rangle t_{A_9,B_{11}} t_{J_1} t_{I_{14},K_8} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^J |\hat{g}|1^K 0^J \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0 \rangle \langle K_8|\hat{1}^-_{\beta}|K_0 \rangle t_{A_9,B_{11}} t_{J_1} t_{I_{14},K_8} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 1^J |\hat{g}|1^K 1^J \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|J_0 \rangle \langle K_8|\hat{1}^-_{\beta}|K_0 \rangle t_{A_9,B_{11}} t_{J_1} t_{I_{14},K_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_2, K_9)\rangle =$$

$$\begin{split} &+\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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}t_{J_{2}}t_{I_{12},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\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_{9},B_{11}}t_{J_{2}}t_{I_{12},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\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_{9},I_{12}}t_{B_{11},K_{9}}t_{J_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\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_{9},I_{12}}t_{B_{11},K_{9}}t_{J_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\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_{9},I_{12}}t_{B_{11},K_{9}}t_{J_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\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}_$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_3, K_9)\rangle =$

$$\begin{split} &+\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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}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_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}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_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}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_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{12},K_{9}}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\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_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{12},K_{9}}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{12},K_{9}}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{9}}t_{J_{3}}\\ &+\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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{9}}t_{J_{3}}\\ &+\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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{9}}t_{J_{3}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\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_{3}|\hat{0}_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{2},K_{7})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{J}0^{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_{9},B_{11}}t_{J_{2}}t_{I_{14},K_{7}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{J}0^{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_{9},B_{11}}t_{J_{2}}t_{I_{14},K_{7}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{14},K_{7}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{14},K_{7}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{14},K_{7}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{14},K_{7}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle I_{14}|\hat{0}_{\beta}^$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{3},K_{7})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{J}0^{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_{9},B_{11}}t_{J_{3}}t_{I_{14},K_{7}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{J}0^{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_{9},B_{11}}t_{J_{3}}t_{I_{14},K_{7}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{3}}t_{I_{14},K_{7}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{3}}t_{I_{14},K_{7}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{3}}t_{I_{14},K_{7}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{3}}t_{I_{14},K_{7}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{14},K_{7}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}0^{J}|\hat{g}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_2,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_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{J_2}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_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{J_2}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_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{J_2}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_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{J_2}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_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{J_2}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_2|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{J_2}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_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,I_{12}}t_{B_{11},K_{10}}t_{J_2}\\ &+ \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_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,I_{12}}t_{B_{11},K_{10}}t_{J_2}\\ &+ \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_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,I_{12}}t_{B_$$

$$\begin{split} &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 0^{J} | \hat{g} | 1^{K} 1^{J} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{2} | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle t_{A_{9}, I_{12}} t_{B_{11}, K_{10}} t_{J_{2}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 0^{J} | \hat{g} | 1^{K} 1^{J} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{2} | \hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle t_{A_{9}, I_{12}} t_{B_{11}, K_{10}} t_{J_{2}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,I_{12}}t_{B_{11},K_{10}}t_{J_3}\\ &+\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$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_2,K_8)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^J |\hat{g}| 1^J 1^K \rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_2 |\hat{0}_{\beta}^+ \hat{1}_{\beta}^- |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{A_9,B_{11}} t_{J_2} t_{I_{14},K_8} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 1^J |\hat{g}| 0^J 1^K \rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_2 |\hat{1}_{\beta}^+ \hat{0}_{\beta}^- |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{A_9,B_{11}} t_{J_2} t_{I_{14},K_8} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^J |\hat{g}| 1^K 1^J \rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_2 |\hat{0}_{\beta}^+ \hat{1}_{\beta}^- |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{A_9,B_{11}} t_{J_2} t_{I_{14},K_8} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^J |\hat{g}| 1^K 1^J \rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{A_9,B_{11}} t_{J_2} t_{I_{14},K_8} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^J |\hat{g}| 1^K 1^J \rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{A_9,B_{11}} t_{J_2} t_{I_{14},K_8} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^J |\hat{g}| 1^K 1^J \rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_2 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{A_9,B_{11}} t_{J_2} t_{I_{14},K_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_3, K_8)\rangle =$$

$$\begin{split} &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{14},K_{8}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{14},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{14},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{14},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{14},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{14},K_{8}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_1, K_9)\rangle =$

$$\begin{split} &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{J}0^{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_{9},B_{11}}t_{J_{1}}t_{I_{11},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{J}0^{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_{9},B_{11}}t_{J_{1}}t_{I_{11},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{11},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{11},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{1}}t_{I_{11},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{11},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{1}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{1}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{1}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{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_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{1}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_1, K_7)\rangle =$$

$$\begin{split} &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{J}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{13},K_{7}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{J}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{13},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{13},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{13},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{13},K_{7}} \end{split}$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{I} 1^{J} | \hat{g} | 0^{K} 1^{J} \rangle \langle I_{13} | \hat{1}^{+}_{\beta} | I_{0} \rangle \langle J_{1} | \hat{1}^{+}_{\alpha} \hat{1}^{-}_{\alpha} | J_{0} \rangle \langle K_{7} | \hat{0}^{-}_{\beta} | K_{0} \rangle t_{A_{9}, B_{11}} t_{J_{1}} t_{I_{13}, K_{7}} dt_{I_{13}, K_$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_1,K_{10})\rangle = \\ &+ \frac{-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_9,B_{11}} t_{J_1} t_{I_{11},K_{10}} \\ &+ \frac{-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{0}_{\alpha}^+ \hat{0}_{\alpha}^- |J_0 \rangle \langle K_{10}| \hat{1}_{\alpha}^- |K_0 \rangle t_{A_9,B_{11}} t_{J_1} t_{I_{11},K_{10}} \\ &+ \frac{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_9,B_{11}} t_{J_1} t_{I_{11},K_{10}} \\ &+ \frac{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_9,B_{11}} t_{J_1} t_{I_{11},K_{10}} \\ &+ \frac{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_9,B_{11}} t_{J_1} t_{I_{11},K_{10}} \\ &+ \frac{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_9,B_{11}} t_{J_1} t_{I_{11},K_{10}} \\ &+ \frac{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_9,I_{11}} t_{B_{11},K_{10}} t_{J_1} \\ &+ \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_1| \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- |J_0 \rangle \langle K_{10}| \hat{1}_{\alpha}^- |K_0 \rangle t_{A_9,I_{11}} t_{B_{11},K_{10}} t_{J_1} \\ &+ \frac{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_9,I_{11}} t_{B_{11},K_{10}} t_{J_1} \\ &+ \frac{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_9,I_{11}} t_{B_{11},K_{10}} t_{J_1} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^I 1^J |\hat{g}| 1^K 1^J \rangle \langle I_{1$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{1},K_{8})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{13},K_{8}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{13},K_{8}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{13},K_{8}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{13},K_{8}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{13},K_{8}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{13},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_2,K_9)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^I 0^J |\hat{g}|1^J 0^K \rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_2|\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |J_0\rangle \langle K_9|\hat{0}_{\alpha}^- |K_0\rangle t_{A_9,B_{11}} t_{J_2} t_{I_{11},K_9} \end{split}$$

$$\begin{split} &+\frac{-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_{9},B_{11}}t_{J_{2}}t_{I_{11},K_{9}}}{t_{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_{9},B_{11}}t_{J_{2}}t_{I_{11},K_{9}}}\\ &+\frac{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_{9},B_{11}}t_{J_{2}}t_{I_{11},K_{9}}}{t_{11}\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_{9},B_{11}}t_{J_{2}}t_{I_{11},K_{9}}}\\ &+\frac{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_{9},B_{11}}t_{J_{2}}t_{I_{11},K_{9}}}\\ &+\frac{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_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{2}}\\ &+\frac{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_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{2}}\\ &+\frac{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_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{2}}\\ &+\frac{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}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{2}}\\ &+\frac{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}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{2}}\\ &+\frac{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}_{\alpha}^{-}|J_{0}\rangle\langle K_{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_3,K_9)\rangle = \\ &+\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_9,B_{11}}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{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_9|\hat{0}^-_{\alpha}|K_0\rangle t_{A_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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{0}^-_{\alpha}|J_0\rangle\langle K_9|\hat{0}^-_{\alpha}|K_0\rangle t_{A_9,B_{11}}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{0}^-_{\alpha}|J_0\rangle\langle K_9|\hat{0}^-_{\alpha}|K_0\rangle t_{A_9,B_{11}}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_9,I_{11}}t_{B_{11},K_9}t_{J_3}\\ &+\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{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_9|\hat{0}^-_{\alpha}|K_0\rangle t_{A_9,I_{11}}t_{B_{11},K_9}t_{J_3}\\ &+\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}|$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_2, K_7)\rangle =$$

$$\begin{split} &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{J}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{13},K_{7}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{J}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{13},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{13},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{13},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{13},K_{7}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{13},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{13},J_3,K_7)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^I 0^J |\hat{g}| 1^J 0^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_9,B_{11}} t_{J_3} t_{I_{13},K_7} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^I 1^J |\hat{g}| 0^J 0^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_9,B_{11}} t_{J_3} t_{I_{13},K_7} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^I 0^J |\hat{g}| 0^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_7| \hat{0}^-_{\beta} |K_0 \rangle t_{A_9,B_{11}} t_{J_3} t_{I_{13},K_7} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^I 0^J |\hat{g}| 0^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_7| \hat{0}^-_{\beta} |K_0 \rangle t_{A_9,B_{11}} t_{J_3} t_{I_{13},K_7} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^I 0^J |\hat{g}| 0^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_7| \hat{0}^-_{\beta} |K_0 \rangle t_{A_9,B_{11}} t_{J_3} t_{I_{13},K_7} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^I 0^J |\hat{g}| 0^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_7| \hat{0}^-_{\beta} |K_0 \rangle t_{A_9,B_{11}} t_{J_3} t_{I_{13},K_7} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^I 0^J |\hat{g}| 0^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_7| \hat{0}^-_{\beta} |K_0 \rangle t_{A_9,B_{11}} t_{J_3} t_{I_{13},K_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_2,K_{10})\rangle = \\ &+ \frac{-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_9,B_{11}}t_{J_2}t_{I_{11},K_{10}}\\ &+ \frac{-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_9,B_{11}}t_{J_2}t_{I_{11},K_{10}}\\ &+ \frac{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_9,B_{11}}t_{J_2}t_{I_{11},K_{10}}\\ &+ \frac{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_9,B_{11}}t_{J_2}t_{I_{11},K_{10}}\\ &+ \frac{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_9,B_{11}}t_{J_2}t_{I_{11},K_{10}}\\ &+ \frac{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}^-_{\alpha}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{J_2}t_{I_{11},K_{10}}\\ &+ \frac{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_9,I_{11}}t_{B_{11},K_{10}}t_{J_2}\\ &+ \frac{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_9,I_{11}}t_{B_$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{I} 0^{J} | \hat{g} | 1^{K} 1^{J} \rangle \langle I_{11} | \hat{1}^{+}_{\alpha} | I_{0} \rangle \langle J_{2} | \hat{1}^{+}_{\beta} \hat{0}^{-}_{\beta} | J_{0} \rangle \langle K_{10} | \hat{1}^{-}_{\alpha} | K_{0} \rangle t_{A_{9},I_{11}} t_{B_{11},K_{10}} t_{J_{2}} \rangle dt_{A_{9},I_{11}} dt_{A_{11},K_{10}} dt_{A_{11},K_{10}} dt_{A_{11},K_{10}} dt_{A_{11},K_{11},K_{11}} dt_{A_{11},K_{11},K_{11}} dt_{A_{11},K_{11},K_{11},K_{11}} dt_{A_{11},K_{11},$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}} 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{0}^+_{\alpha} \hat{1}^-_{\alpha} |J_0 \rangle \langle K_{10}| \hat{1}^-_{\alpha} |K_0 \rangle t_{A_9,B_{11}} 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_9,B_{11}} 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_9,B_{11}} 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{0}^-_{\beta} |J_0 \rangle \langle K_{10}| \hat{1}^-_{\alpha} |K_0 \rangle t_{A_9,B_{11}} 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{0}^-_{\beta} |J_0 \rangle \langle K_{10}| \hat{1}^-_{\alpha} |K_0 \rangle t_{A_9,B_{11}} 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_9,I_{11}} t_{B_{11},K_{10}} t_{J_3} \\ &+ \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_9,I_{11}} t_{B_{11},K_{10}} t_{J_3} \\ &+ \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_9,I_{11}} t_{B_{11},K_{10}} t_{J_3} \\ &+ \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_9,I_{11}} t_{B_{11},K_{10}} t_{J_3} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^I 0^J |\hat{g}| 1^K 1^J \rangle \langle I_{1$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{2},K_{8})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{13},K_{8}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{13},K_{8}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{13},K_{8}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{13},K_{8}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{13},K_{8}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{13},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{13},J_3,K_8)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^I 0^J |\hat{g}|1^J 1^K \rangle \langle I_{13}|\hat{1}^+_{\beta} |I_0\rangle \langle J_3|\hat{0}^+_{\beta}\hat{1}^-_{\beta} |J_0\rangle \langle K_8|\hat{1}^-_{\beta} |K_0\rangle t_{A_9,B_{11}} t_{J_3} t_{I_{13},K_8} \end{split}$$

$$\begin{split} &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{13},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{13},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{13},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{13},K_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{13},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}t_{I_1}t_{J_9,K_{12}}\\ &+ \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_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_9,K_{12}}\\ &+ \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}_{\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_9,B_{11}}t_{I_1}t_{J_9,K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^J 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_9,B_{11}}t_{I_1}t_{J_9,K_{12}}\\ &+ \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_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_9,K_{12}}\\ &+ \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_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_9,K_{12}}\\ &+ \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_9,K_{12}}t_{B_{11},J_9}t_{I_1}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^J 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_9,K_{12}}t_{B_{11},J_9}t_{I_1}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^J 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_9,K_{12}}t_{B_{11},J_9}t_{I_1}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^J 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_9,K_{12}}t_{B_{11},J_9}t_{I_1}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 0^J|\hat{g}|0^J 0^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_9,K_{12}}t_{B_{11},J_9}t_{I_1}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I 0^J|\hat{g}|0^J 0^K\rangle\langle I_1|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{1},J_{7},K_{14})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{7},K_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{7},K_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{7},K_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{7},K_{14}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{7},K_{14}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{I_{7},K_{14}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_1,J_{10},K_{12})\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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{10},K_{12}}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{10},K_{12}}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^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_9,B_{11}}t_{I_1}t_{J_{10},K_{12}}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{10},K_{12}}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{10},K_{12}}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{12}}t_{B_{11},J_{10}}t_{I_1}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\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_9,K_{12}}t_{B_{11},J_{10}}t_{I_1}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{12}}t_{B_{11},J_{10}}t_{I_1}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{12}}t_{B_{11},J_{10}}t_{I_1}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{12}}t_{B_{11},J_{10}}t_{I_1}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|0^I0^K\rangle\langle I_1|\hat{0}_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{2},J_{9},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle \langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle \langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{9},K_{12}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle \langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle \langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{9},K_{12}} \end{split}$$

$$\begin{split} &+\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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{A_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\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_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\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_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\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_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\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_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\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_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\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}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_3,J_9,K_{12})\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_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}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_{A_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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}_{\alpha}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}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_{A_9,K_{12}}t_{B_{11},J_9}t_{I_3}\\ &+ \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_9,K_{12}}t_{B_{11},J_9}t_{I_3}\\ &+ \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_9,K_{12}}t_{B_{11},J_9}t_{I_3}\\ &+ \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}_{\alpha}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{12}}t_{B_{11},J_9}t_{I_3}\\ &+ \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}_{\alpha}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{12}}t_{B_{11},J_9}t_{I_3}\\ &+ \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}^{+}|$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_2,J_7,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^J |\hat{g}| 1^I 0^K \rangle \langle I_2 |\hat{0}^+_\beta \hat{1}^-_\beta |I_0\rangle \langle J_7 |\hat{0}^-_\beta |J_0\rangle \langle K_{14} |\hat{0}^+_\beta |K_0\rangle t_{A_9,B_{11}} t_{I_2} t_{J_7,K_{14}} \end{split}$$

$$\begin{split} & + \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 0^{J} | \hat{g} | 1^{I} 0^{K} \rangle \langle I_{2} | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle t_{A_{9},B_{11}} t_{I_{2}} t_{J_{7},K_{14}} \\ & + \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 0^{J} | \hat{g} | 1^{I} 0^{K} \rangle \langle I_{2} | \hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle t_{A_{9},B_{11}} t_{I_{2}} t_{J_{7},K_{14}} \\ & + \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 0^{J} | \hat{g} | 1^{I} 0^{K} \rangle \langle I_{2} | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle t_{A_{9},B_{11}} t_{I_{2}} t_{J_{7},K_{14}} \\ & + \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 1^{I} | \hat{g} | 0^{J} 0^{K} \rangle \langle I_{2} | \hat{0}_{\beta}^{+} \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle t_{A_{9},B_{11}} t_{I_{2}} t_{J_{7},K_{14}} \\ & + \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 1^{I} | \hat{g} | 0^{K} 0^{J} \rangle \langle I_{2} | \hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle t_{A_{9},B_{11}} t_{I_{2}} t_{J_{7},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{3},J_{7},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle \langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{7},K_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle \langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{7},K_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle \langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{7},K_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|1^{I}0^{K}\rangle \langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{7},K_{14}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}1^{I}|\hat{g}|0^{J}0^{K}\rangle \langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{7},K_{14}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}1^{I}|\hat{g}|0^{K}0^{J}\rangle \langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{7},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_2,J_{10},K_{12})\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}_{\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_9,B_{11}}t_{I_2}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_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_9,B_{11}}t_{I_2}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_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_9,B_{11}}t_{I_2}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_2|\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_9,B_{11}}t_{I_2}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_2|\hat{0}_{\beta}^{+}\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_9,B_{11}}t_{I_2}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_2|\hat{0}_{\beta}^{+}\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_9,B_{11}}t_{I_2}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_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_9,B_{11}}t_{I_2}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_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_9,K_{12}}t_{B_{11},J_{10}}t_{I_2}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{12}}t_{B_{11},J_{10}}t_{I_2}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{12}}t_{B_{11},J_{10}}t_{I_2}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{12}}t_{B_{11},J_{10}}t_{I_2}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_3,J_{10},K_{12})\rangle = \\ &+ \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}_{\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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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}_{\alpha}^{-}|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}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}_{\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_9,K_{12}}t_{B_{11},J_{10}}t_{I_3} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\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_9,K_{12}}t_{B_{11},J_{10}}t_{I_3} \\ &+ \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{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_9,K_{12}}t_{B_{11},J_{10}}t_{I_3} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^J 0^K\rangle\langle I_3|\hat{0}_{\beta}^{+}\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_9,K_{12}}t_{B_{11},J_{10}}t_{I_3} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^J 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_9,K_{12}}t_{B_{11},J_{10}}t_{I_3} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{2},J_{8},K_{14})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{8},K_{14}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{8},K_{14}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{8},K_{14}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{8},K_{14}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{8},K_{14}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{8},K_{14}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{3},J_{8},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 1^{J} |\hat{g}| 1^{I} 0^{K} \rangle \langle I_{3} |\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{-} |I_{0}\rangle \langle J_{8} |\hat{1}_{\beta}^{-} |J_{0}\rangle \langle K_{14} |\hat{0}_{\beta}^{+} |K_{0}\rangle t_{A_{9},B_{11}} t_{I_{3}} t_{J_{8},K_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 1^{J} |\hat{g}| 1^{I} 0^{K} \rangle \langle I_{3} |\hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{-} |I_{0}\rangle \langle J_{8} |\hat{1}_{\beta}^{-} |J_{0}\rangle \langle K_{14} |\hat{0}_{\beta}^{+} |K_{0}\rangle t_{A_{9},B_{11}} t_{I_{3}} t_{J_{8},K_{14}} \end{split}$$

$$\begin{split} &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{8},K_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{8},K_{14}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{8},K_{14}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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}_{\alpha}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}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_{A_9,K_{11}}t_{B_{11},J_9}t_{I_1}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\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_9,K_{11}}t_{B_{11},J_9}t_{I_1}\\ &+ \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{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_9,K_{11}}t_{B_{11},J_9}t_{I_1}\\ &+ \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{0}_{\beta}^{+}\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_9,K_{11}}t_{B_{11},J_9}t_{I_1}\\ &+ \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{0}_{\beta}^{+}\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_9,K_{11}}t_{B_{11},J_9}t_{I_1}\\ &+ \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{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{1},J_{7},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|0^{I}1^{K}\rangle \langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\rho}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{7},K_{13}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|0^{I}1^{K}\rangle \langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{7},K_{13}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle \langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{7},K_{13}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle \langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{7},K_{13}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{I}|\hat{g}|0^{J}1^{K}\rangle \langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{7},K_{13}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{I}1^{I}|\hat{g}|0^{J}1^{K}\rangle \langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{1}}t_{J_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_1,J_{10},K_{11})\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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{10},K_{11}}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{10},K_{11}}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{10},K_{11}}\\ &+ \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{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_9,B_{11}}t_{I_1}t_{J_{10},K_{11}}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{10},K_{11}}\\ &+ \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}_{\alpha}^{-}|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_1}t_{J_{10},K_{11}}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{11}}t_{B_{11},J_{10}}t_{I_1}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^J 1^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_9,K_{11}}t_{B_{11},J_{10}}t_{I_1}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{11}}t_{B_{11},J_{10}}t_{I_1}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{11}}t_{B_{11},J_{10}}t_{I_1}\\ &+ \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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{11}}t_{B_{11},J_{10}}t_{I_1}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{1},J_{8},K_{13})\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}_{\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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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{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_{9},B_{11}}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{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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}t_{I_{1}}t_{J_{8},K_{13}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{2},J_{9},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle \langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{9},K_{11}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle \langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}1^{I}|\hat{g}|0^{J}1^{K}\rangle \langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{9},K_{11}} \end{split}$$

$$\begin{split} &+\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_{9},B_{11}}t_{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{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_{9},B_{11}}t_{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}_{\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_{9},B_{11}}t_{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{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_{9},K_{11}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\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_{9},K_{11}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\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_{9},K_{11}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\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}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\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_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\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_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\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_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\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{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_3,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_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_9,B_{11}}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_{A_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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}_{\alpha}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}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_{A_9,K_{11}}t_{B_{11},J_9}t_{I_3} \\ &+ \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_9,K_{11}}t_{B_{11},J_9}t_{I_3} \\ &+ \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_9,K_{11}}t_{B_{11},J_9}t_{I_3} \\ &+ \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}_{\alpha}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{11}}t_{B_{11},J_9}t_{I_3} \\ &+ \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}_{\alpha}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{11}}t_{B_{11},J_9}t_{I_3} \\ &+ \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}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{2},J_{7},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle \langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{7},K_{13}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle \langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{7},K_{13}} \end{split}$$

$$\begin{split} &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{7},K_{13}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{7},K_{13}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{7},K_{13}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{3},J_{7},K_{13})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{7},K_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{7},K_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{7},K_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{7},K_{13}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{7},K_{13}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_2,J_{10},K_{11})\rangle = \\ &+ \frac{-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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{10},K_{11}} \\ &+ \frac{-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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{10},K_{11}} \\ &+ \frac{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}_{\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_9,B_{11}}t_{I_2}t_{J_{10},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^K 1^J\rangle\langle I_2|\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_9,B_{11}}t_{I_2}t_{J_{10},K_{11}} \\ &+ \frac{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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{10},K_{11}} \\ &+ \frac{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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_2}t_{J_{10},K_{11}} \\ &+ \frac{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_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,K_{11}}t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^J 1^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_9,K_{11}}t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^J 1^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_9,K_{11}}t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^J 1^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_9,K_{11}}t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|1^J 1^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_9,K_{11}}t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_3,J_{10},K_{11})\rangle = \\ &+ \frac{-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_9,B_{11}}t_{I_3}t_{J_{10},K_{11}} \\ &+ \frac{-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_9,B_{11}}t_{I_3}t_{J_{10},K_{11}} \\ &+ \frac{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_9,B_{11}}t_{I_3}t_{J_{10},K_{11}} \\ &+ \frac{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_9,B_{11}}t_{I_3}t_{J_{10},K_{11}} \\ &+ \frac{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_9,B_{11}}t_{I_3}t_{J_{10},K_{11}} \\ &+ \frac{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}_{\alpha}^{-}|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{A_9,B_{11}}t_{I_3}t_{J_{10},K_{11}} \\ &+ \frac{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_9,K_{11}}t_{B_{11},J_{10}}t_{I_3} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\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_9,K_{11}}t_{B_{11},J_{10}}t_{I_3} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\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_9,K_{11}}t_{B_{11},J_{10}}t_{I_3} \\ &+ \frac{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_9,K_{11}}t_{B_{11},J_{10}}t_{I_3} \\ &+ \frac{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_9,K_{11}}t_{B_{11},J_{10}}t_{I_3} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{2},J_{8},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle \langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{8},K_{13}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle \langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{8},K_{13}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle \langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{8},K_{13}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle \langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{8},K_{13}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}1^{I}|\hat{g}|1^{J}1^{K}\rangle \langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{8},K_{13}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}1^{I}|\hat{g}|1^{K}1^{J}\rangle \langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{2}}t_{J_{8},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{3},J_{8},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle \langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{8},K_{13}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle \langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{8},K_{13}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}1^{J}|\hat{g}|1^{I}1^{K}\rangle \langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{I_{3}}t_{J_{8},K_{13}} \end{split}$$

$$\begin{split} &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 1^{J} | \hat{g} | 1^{I} 1^{K} \rangle \langle I_{3} | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{8} | \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle t_{A_{9},B_{11}} t_{I_{3}} t_{J_{8},K_{13}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 1^{I} | \hat{g} | 1^{J} 1^{K} \rangle \langle I_{3} | \hat{0}_{\beta}^{+} \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{8} | \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle t_{A_{9},B_{11}} t_{I_{3}} t_{J_{8},K_{13}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 1^{I} | \hat{g} | 1^{K} 1^{J} \rangle \langle I_{3} | \hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{8} | \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle t_{A_{9},B_{11}} t_{I_{3}} t_{J_{8},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_9,K_1)\rangle = \\ &+\frac{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_9,B_{11}}t_{K_1}t_{I_{12},J_9} \\ &+\frac{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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}t_{K_1}t_{I_{12},J_9} \\ &+\frac{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_9,B_{11}}t_{K_1}t_{I_{12},J_9} \\ &+\frac{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_9,I_{12}}t_{B_{11},J_9}t_{K_1} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,I_{12}}t_{B_{11},J_9}t_{K_1} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^IK|\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{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,I_{12}}t_{B_{11},J_9}t_{K_1} \\ &+\frac{1}{12}\sum_{L}\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_9,I_{12}}t_{B_{11},J_9}t_{K_1} \\ &+\frac{1}{12}\sum_{L}\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_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{7},K_{1})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{14},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{14},J_{7}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{14},J_{7}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{14},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{14},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{14},J_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_9,K_2)\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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_2|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{K_2}t_{I_{12},J_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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_2|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{K_2}t_{I_{12},J_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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_2|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{K_2}t_{I_{12},J_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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_2|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{K_2}t_{I_{12},J_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|1^K0^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_9,B_{11}}t_{K_2}t_{I_{12},J_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K1^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_9,B_{11}}t_{K_2}t_{I_{12},J_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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_2|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{K_2}t_{I_{12},J_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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_2|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,I_{12}}t_{B_{11},J_9}t_{K_2} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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_2|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_0\rangle t_{A_9,I_{12}}t_{B_{11},J_9}t_{K_2} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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_2|\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,I_{12}}t_{B_{11},J_9}t_{K_2} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^K1^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}_{\alpha}^{-}|K_0\rangle t_{A_9,I_{12}}t_{B_{11},J_9}t_{K_2} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K1^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$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_9,K_3)\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_{12},J_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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_3|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_{12},J_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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_3|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_{12},J_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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_3|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_{12},J_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_{12},J_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K1^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_9,B_{11}}t_{K_3}t_{I_{12},J_9} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^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_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_0\rangle t_{A_9,I_{12}}t_{B_{11},J_9}t_{K_3} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K1^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$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{7},K_{2})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{14},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{14},J_{7}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{14},J_{7}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{14},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{14},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{14},J_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{7},K_{3})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{14},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{14},J_{7}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{14},J_{7}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{14},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{14},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{14},J_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}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{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}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_9,B_{11}}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{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}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_{A_9,I_{12}}t_{B_{11},J_{10}}t_{K_1} \\ &+ \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_9,I_{12}}t_{B_{11},J_{10}}t_{K_1} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{L}\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle$$

$$\begin{split} &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 1^{K} | \hat{g} | 1^{J} 1^{K} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{1} | \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} | K_{0} \rangle t_{A_{9}, I_{12}} t_{B_{11}, J_{10}} t_{K_{1}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 1^{J} | \hat{g} | 0^{K} 0^{K} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{1} | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | K_{0} \rangle t_{A_{9}, I_{12}} t_{B_{11}, J_{10}} t_{K_{1}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 1^{J} | \hat{g} | 1^{K} 1^{K} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{1} | \hat{1}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | K_{0} \rangle t_{A_{9}, I_{12}} t_{B_{11}, J_{10}} t_{K_{1}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{8},K_{1})\rangle = \\ &+\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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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{I}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}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$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_{10},K_2)\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_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_{A_9,B_{11}}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{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}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_{A_9,I_{12}}t_{B_{11},J_{10}}t_{K_2}\\ &+\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_9,I_{12}}t_{B_{11},J_{10}}t_{K_2}\\ &+\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_9,I_{12}}t_{B_{11},J_{10}}t_{K_2}\\ &+\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_9,I_{12}}t_{B_{11},J_{10}}t_{K_2}\\ &+\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}_{\alpha}^-|K_0\rangle t_{A_9,I_{12}}t_{B_{11},J_{10}}t_{K_2}\\ &+\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}_{\alpha}^-|K_0\rangle t_{A_9,I_{12}}t_{B_{11},J_{10}}t_$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}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_{A_9,B_{11}}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}_{\beta}^-|K_0\rangle t_{A_9,I_{12}}t_{B_{11},J_{10}}t_{K_3} \\ &+\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_9,I_{12}}t_{B_{11$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{8},K_{2})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{14},J_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{14},J_{8}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{14},J_{8}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{14},J_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{14},J_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{14},J_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{8},K_{3})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{14},J_{8}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{14},J_{8}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{14},J_{8}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{14},J_{8}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{14},J_{8}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{3}|\hat{0}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{14},J_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{3}|\hat{1}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{14},J_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}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_{A_9,I_{11}}t_{B_{11},J_9}t_{K_1} \\ &+\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{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_0\rangle t_{A_9,I_{11}}t_{B_{11},J_9}t_{K_1} \\ &+\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{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,I_{11}}t_{B_{11},J_9}t_{K_1} \\ &+\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{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,I_{11}}t_{B_{11},J_9}t_{K_1} \\ &+\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_9,I_{11}}t_{B_{11},J_9}t_{K_1} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K0^K\rangle\langle I_{11}|\hat{I}_{\alpha}^{+}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_1|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{7},K_{1})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{13},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{13},J_{7}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{13},J_{7}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{13},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{13},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{13},J_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_9, K_2)\rangle =$$

$$\begin{split} &+\frac{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_{9},B_{11}}t_{K_{2}}t_{I_{11},J_{9}}}{+\frac{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_{9},B_{11}}t_{K_{2}}t_{I_{11},J_{9}}}\\ &+\frac{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_{9},B_{11}}t_{K_{2}}t_{I_{11},J_{9}}}\\ &+\frac{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_{9},B_{11}}t_{K_{2}}t_{I_{11},J_{9}}}\\ &+\frac{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_{9},B_{11}}t_{K_{2}}t_{I_{11},J_{9}}}\\ &+\frac{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{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{11},J_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{L}\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_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{L}\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}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{L}\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_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\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{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{2}}\\ &+\frac{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$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_9, K_3)\rangle =$

$$\begin{split} &+\frac{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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{11},J_{9}}\\ &+\frac{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_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{11},J_{9}}\\ &+\frac{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_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{11},J_{9}}\\ &+\frac{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_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{11},J_{9}}\\ &+\frac{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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{11},J_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{L}\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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{11},J_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{L}\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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{3}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{L}\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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{3}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{L}\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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{3}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{L}\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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{3}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{L}\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}^{-}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{7},K_{2})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{13},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{13},J_{7}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{13},J_{7}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{13},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{13},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{13},J_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{7},K_{3})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{13},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{13},J_{7}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{13},J_{7}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{13},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{13},J_{7}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{13},J_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_0\rangle t_{A_9,B_{11}}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_{A_9,I_{11}}t_{B_{11},J_{10}}t_{K_1} \\ &+ \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_9,I_{11}}t_{B_{11},J_{10}}t_{K_1} \\ &+ \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{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_0\rangle t_{A_9,I_{11}}t_{B_{11},J_{10}}t_{K_1} \\ &+ \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{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_0\rangle t_{A_9,I_{11}}t_{B_{11},J_{10}}t_{K_1} \\ &+ \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{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_0\rangle t_{A_9,I_{11}}t_{B_{11},J_{10}}t_{K_1} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^K|\hat{g}|1^J1^K\rangle\langle$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{1}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{1}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{8},K_{1})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{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_{9},B_{11}}t_{K_{1}}t_{I_{13},J_{8}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{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_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{13},J_{8}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{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_{9},B_{11}}t_{K_{1}}t_{I_{13},J_{8}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{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}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{13},J_{8}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{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_{9},B_{11}}t_{K_{1}}t_{I_{13},J_{8}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{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_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{13},J_{8}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{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_{1}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle I_{13}|\hat{1}_{\alpha}^{+}|I_{13},J_{14}\rangle\langle I_{13}|I_{14}|I_{14}|I_{14}|I_{14}|I_{14}|I_{14}|I_{14}|I_{14}|I_{1$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}t_{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_9,B_{11}}t_{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{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{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{1}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_9,B_{11}}t_{K_2}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_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{K_2}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_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{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}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,I_{11}}t_{B_{11},J_{10}}t_{K_2}\\ &+\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_9,I_{11}}t_{B_{11},J_{10}}t_{K_2}\\ &+\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}_{\alpha}^-|K_0\rangle t_{A_9,I_{11}}t_{B_{11},J_{10}}t_{K_2}\\ &+\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}_{\alpha}^-|K_0\rangle t_{A_9,I_{11}}t_{B_{11},J_{10}}t_{K_2}\\ &+\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_2|\hat{0}_{\beta}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,I_{11}}t_{B_{11},J_{10}}t_{K_2}\\ &+\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_2|\hat{0}_{\beta}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,I_{11}}t_{B_{11},J_{10}}t_$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{10}, K_3)\rangle =$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{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_{9},B_{11}}t_{K_{3}}t_{I_{11},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{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_{9},B_{11}}t_{K_{3}}t_{I_{11},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{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_{9},B_{11}}t_{K_{3}}t_{I_{11},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{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}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{11},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{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_{9},B_{11}}t_{K_{3}}t_{I_{11},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{K_{3}}t_{I_{11},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{L}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{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_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{3}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{L}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{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_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{3}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{L}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{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_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{3}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{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_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{3}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{8},K_{2})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{13},J_{8}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{13},J_{8}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{13},J_{8}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{13},J_{8}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{13},J_{8}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{13},J_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{8},K_{3})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{13},J_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{13},J_{8}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{13},J_{8}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{13},J_{8}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{13},J_{8}} \end{split}$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{I} 0^{K} | \hat{g} | 1^{J} 1^{K} \rangle \langle I_{13} | \hat{1}^{+}_{\beta} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{3} | \hat{1}^{+}_{\alpha} \hat{0}^{-}_{\alpha} | K_{0} \rangle t_{A_{9}, B_{11}} t_{K_{3}} t_{I_{13}, J_{8}} \rangle dt_{A_{9}, B_{11}} dt_{A_{9}, B$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_1,K_{12})\rangle = \\ &+\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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_9,B_{11}}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_9,B_{11}}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{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_9,K_{12}}t_{B_{11},I_9}t_{J_1} \\ &+\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_9,K_{12}}t_{B_{11},I_9}t_{J_1} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^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_9,K_{12}}t_{B_{11},I_9}t_{J_1} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^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_9,K_{12}}t_{B_{11},I_9}t_{J_1} \\ &+\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{0}_\alpha^+\hat{0}_\alpha^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_9,K_{12}}t_{B_{11},I_9}t_{J_1} \\ &+\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_9,K_{12}}t_{B_{11},I_9}t_{J_1} \\ &+\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{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_9,K_{12}}t_{B_{11},I_9}t_{J_1} \\ &+\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{0}_\beta^+\hat{0}_\beta^-|J_0\rangle\langle K_{12}|\hat{0}_\alpha^+|K_0\rangle t_{A_9,K_{12}}t_{B_{11},I_9}t_{J_1} \\$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{1},K_{14})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{J}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{7},K_{14}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{J}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{7},K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{7},K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{7},K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{7},K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{7},K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_2, K_{12})\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 1^J |\hat{g}|0^J 0^K \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{A_9, B_{11}} t_{J_2} t_{I_9, K_{12}}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{J}0^{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_{9},B_{11}}t_{J_{2}}t_{I_{9},K_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{9},K_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{9},K_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{9},K_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{9},K_{12}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},K_{12}}t_{B_{11},I_{9}}t_{J_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},K_{12}}t_{B_{11},I_{9}}t_{J_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},K_{12}}t_{B_{11},I_{9}}t_{J_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},K_{12}}t_{B_{11},I_{9}}t_{J_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},K_{12}}t_{B_{11},I_{9}}t_{J_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_3,K_{12})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 1^J|\hat{g}|0^J 0^K\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_9,K_{12}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|1^J 0^K\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_9,K_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_9,K_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_9,K_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\beta}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_9,K_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|0^K 1^J\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,K_{12}}t_{B_{11},I_9}t_{J_3}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I 0^J|\hat{g}|$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_2, K_{14})\rangle =$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{J}0^{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_{9},B_{11}}t_{J_{2}}t_{I_{7},K_{14}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{J}0^{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_{9},B_{11}}t_{J_{2}}t_{I_{7},K_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{7},K_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{7},K_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{7},K_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{7},K_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{7},K_{14}}\\ \end{aligned}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{3},K_{14})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{J}0^{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_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{14}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{J}0^{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_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{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_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{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_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{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_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{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_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{I}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{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_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{I}\sum_{I}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{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_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\langle 0^{I}0^{J}|\hat{g}|0^{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_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\langle 0^{I}0^{J}0^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{14}|\hat{0}_{\beta}^{+}|I_{14}|\hat{0}_{\beta}^{+}|I_{14}|\hat{0}_{\beta}^{+}|I_{14}|\hat{0}_{\beta}^{+}|I_{14}|\hat{0}_{\beta}^{-}|I_{14}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{10},J_1,K_{12})\rangle = \\ &+ \frac{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_9,B_{11}}t_{J_1}t_{I_{10},K_{12}}\\ &+ \frac{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_9,B_{11}}t_{J_1}t_{I_{10},K_{12}}\\ &+ \frac{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_9,B_{11}}t_{J_1}t_{I_{10},K_{12}}\\ &+ \frac{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_9,B_{11}}t_{J_1}t_{I_{10},K_{12}}\\ &+ \frac{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}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{J_1}t_{I_{10},K_{12}}\\ &+ \frac{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{0}^+_{\beta}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{J_1}t_{I_{10},K_{12}}\\ &+ \frac{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_9,K_{12}}t_{B_{11},I_{10}}t_{J_1}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K0^J\rangle\langle I_{10}|\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_9,K_{12}}t_{B_{1$$

$$+ \tfrac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{I} 1^{J} | \hat{g} | 0^{K} 1^{J} \rangle \langle I_{10} | \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{1} | \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle t_{A_{9}, K_{12}} t_{B_{11}, I_{10}} t_{J_{11}} t_{J_{11}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{1},K_{14})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{J}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{8},K_{14}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{J}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{8},K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{8},K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{8},K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{8},K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{8},K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}1^{J$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{10},J_2,K_{12})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^J|\hat{g}|0^J0^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_9,B_{11}}t_{J_2}t_{I_{10},K_{12}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|1^J0^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_9,B_{11}}t_{J_2}t_{I_{10},K_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^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_9,B_{11}}t_{J_2}t_{I_{10},K_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^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_9,B_{11}}t_{J_2}t_{I_{10},K_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^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_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{J_2}t_{I_{10},K_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\beta}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{J_2}t_{I_{10},K_{12}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^J|\hat{g}|0^J0^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_9,K_{12}}t_{B_{11},I_{10}}t_{J_2}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\beta}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,K_{12}}t_{B_{11},I_{10}}t_{J_2}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\beta}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,K_{12}}t_{B_{11},I_{10$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{10},J_3,K_{12})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^I 1^J |\hat{g}|0^J 0^K \rangle \langle I_{10}|\hat{1}^-_{\alpha} |I_0\rangle \langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha} |J_0\rangle \langle K_{12}|\hat{0}^+_{\alpha} |K_0\rangle t_{A_9,B_{11}} t_{J_3} t_{I_{10},K_{12}} \end{split}$$

$$\begin{split} &+\frac{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_{9},B_{11}}t_{J_{3}}t_{I_{10},K_{12}}\\ &+\frac{-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_{9},B_{11}}t_{J_{3}}t_{I_{10},K_{12}}\\ &+\frac{-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_{9},B_{11}}t_{J_{3}}t_{I_{10},K_{12}}\\ &+\frac{-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_{9},B_{11}}t_{J_{3}}t_{I_{10},K_{12}}\\ &+\frac{-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_{9},B_{11}}t_{J_{3}}t_{I_{10},K_{12}}\\ &+\frac{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_{9},K_{12}}t_{B_{11},I_{10}}t_{J_{3}}\\ &+\frac{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_{9},K_{12}}t_{B_{11},I_{10}}t_{J_{3}}\\ &+\frac{-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_{9},K_{12}}t_{B_{11},I_{10}}t_{J_{3}}\\ &+\frac{-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_{9},K_{12}}t_{B_{11},I_{10}}t_{J_{3}}\\ &+\frac{-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_{9},K_{12}}t_{B_{11},I_{10}}t_{J_{3}}\\ &+\frac{-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}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{2},K_{14})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{J}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{8},K_{14}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{J}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{8},K_{14}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{8},K_{14}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{8},K_{14}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{8},K_{14}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{8},K_{14}}\\ &+ \frac{-1}{12}\sum_{J}\sum_{L}\sum_{L}\langle 1^{J}0^{J}|\hat{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_8,J_3,K_{14})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^J|\hat{g}|0^J0^K\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|J_0\rangle\langle K_{14}|\hat{0}^+_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_8,K_{14}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|1^J0^K\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle\langle K_{14}|\hat{0}^+_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_8,K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|J_0\rangle\langle K_{14}|\hat{0}^+_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_8,K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{14}|\hat{0}^+_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_8,K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle\langle K_{14}|\hat{0}^+_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_8,K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{14}|\hat{0}^+_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_8,K_{14}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|0^K1^J\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle I_1|\hat{0}^+_{\beta}|I_0\rangle\langle I_1|\hat{0}^+_{\beta}|I_0\rangle\langle I_1|\hat{0}^+_{\beta}|I_0\rangle\langle I_1|\hat{0}^+_{\beta}|I_0\rangle\langle I_1|\hat{0}^+_{\beta}|I_0\rangle\langle I_1|\hat{0}^+_{\beta}|I_0\rangle\langle I_1|\hat{0}^+_{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_1,K_{11})\rangle = \\ &+\frac{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_9,B_{11}}t_{J_1}t_{I_9,K_{11}} \\ &+\frac{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_9,B_{11}}t_{J_1}t_{I_9,K_{11}} \\ &+\frac{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_9,B_{11}}t_{J_1}t_{I_9,K_{11}} \\ &+\frac{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_9,B_{11}}t_{J_1}t_{I_9,K_{11}} \\ &+\frac{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_9,B_{11}}t_{J_1}t_{I_9,K_{11}} \\ &+\frac{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{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{A_9,K_{11}}t_{B_{11},I_9}t_{J_1} \\ &+\frac{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_9,K_{11}}t_{B_{11},I_9}t_{J_1} \\ &+\frac{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_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{A_9,K_{11}}t_{B_{11},I_9}t_{J_1} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|1^K0^J\rangle\langle I_9|\hat{0}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{1},K_{13})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{J}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{7},K_{13}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{J}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{7},K_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{7},K_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{7},K_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{7},K_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{2},K_{11})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 1^{J} |\hat{g}| 0^{J} 1^{K} \rangle \langle I_{9} |\hat{0}_{\alpha}^{-} |I_{0}\rangle \langle J_{2} |\hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{-} |J_{0}\rangle \langle K_{11} |\hat{1}_{\alpha}^{+} |K_{0}\rangle t_{A_{9},B_{11}} t_{J_{2}} t_{I_{9},K_{11}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I} 0^{J} |\hat{g}| 1^{J} 1^{K} \rangle \langle I_{9} |\hat{0}_{\alpha}^{-} |I_{0}\rangle \langle J_{2} |\hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{-} |J_{0}\rangle \langle K_{11} |\hat{1}_{\alpha}^{+} |K_{0}\rangle t_{A_{9},B_{11}} t_{J_{2}} t_{I_{9},K_{11}} \end{split}$$

$$\begin{split} &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{9},K_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{9},K_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{9},K_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{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_{9},B_{11}}t_{J_{2}}t_{I_{9},K_{11}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{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_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{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_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{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_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{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_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{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_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{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_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_3, K_{11})\rangle =$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{J}1^{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_{9},B_{11}}t_{J_{3}}t_{I_{9},K_{11}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{J}1^{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_{9},B_{11}}t_{J_{3}}t_{I_{9},K_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{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_{9},B_{11}}t_{J_{3}}t_{I_{9},K_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{9},K_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{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_{9},B_{11}}t_{J_{3}}t_{I_{9},K_{11}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{9},K_{11}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{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_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{3}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_2, K_{13})\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 1^J |\hat{g}|0^J 1^K \rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_2 |\hat{0}_{\beta}^+ \hat{1}_{\beta}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{A_9, B_{11}} t_{J_2} t_{I_7, K_{13}}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{J}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{7},K_{13}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{7},K_{13}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{7},K_{13}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{7},K_{13}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{9}}t_{A_{9},B_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle I_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{3},K_{13})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{J}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{13}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{J}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{13}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{13}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{13}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{13}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{7},K_{13}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_9,B_{11}}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_9,B_{11}}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}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_9,B_{11}}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_{A_9,K_{11}}t_{B_{11},I_{10}}t_{J_1} \\ &+ \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$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{1},K_{13})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{8},K_{13}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{8},K_{13}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{8},K_{13}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{8},K_{13}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{8},K_{13}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{1}}t_{I_{8},K_{13}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{10},J_2,K_{11})\rangle = \\ &+\frac{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_9,B_{11}}t_{J_2}t_{I_{10},K_{11}}\\ &+\frac{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_9,B_{11}}t_{J_2}t_{I_{10},K_{11}}\\ &+\frac{-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_9,B_{11}}t_{J_2}t_{I_{10},K_{11}}\\ &+\frac{-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_9,B_{11}}t_{J_2}t_{I_{10},K_{11}}\\ &+\frac{-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_9,B_{11}}t_{J_2}t_{I_{10},K_{11}}\\ &+\frac{-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_9,B_{11}}t_{J_2}t_{I_{10},K_{11}}\\ &+\frac{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_9,K_{11}}t_{B_{11},I_{10}}t_{J_2}\\ &+\frac{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_9,K_{11}}t_{B_{11},I_{10}}t_{J_2}\\ &+\frac{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_$$

$$\langle (A_{9}, B_{11})|\hat{H}|(A_{9}, B_{11}, I_{10}, J_{3}, K_{11})\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{J}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{10},K_{11}}$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{J}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{10},K_{11}}$$

$$\begin{split} &+\frac{-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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{10},K_{11}}\\ &+\frac{-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_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{10},K_{11}}\\ &+\frac{-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_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{10},K_{11}}\\ &+\frac{-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_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{3}}t_{I_{10},K_{11}}\\ &+\frac{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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{3}}\\ &+\frac{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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{3}}\\ &+\frac{-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_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{3}}\\ &+\frac{-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_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{3}}\\ &+\frac{-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_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{3}}\\ &+\frac{-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_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{3}}\\ &+\frac{-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_{3}|\hat{0$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{2},K_{13})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{8},K_{13}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{8},K_{13}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{8},K_{13}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{8},K_{13}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{8},K_{13}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{J}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{A_{9},B_{11}}t_{J_{2}}t_{I_{8},K_{13}} \\ &+\frac{-1}{12}\sum_{J}\sum_{L}\sum_{L}\langle 1^{J}0^{J}|\hat{g$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_8,J_3,K_{13})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^J|\hat{g}|0^J1^K\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_8,K_{13}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_8,K_{13}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_8,K_{13}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_8,K_{13}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_8,K_{13}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_8,K_{13}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^J|\hat{g}|1^K1^J\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{J_3}t_{I_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_{12},K_1)\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J0^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_9,B_{11}}t_{K_1}t_{I_9,J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J0^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_9,B_{11}}t_{K_1}t_{I_9,J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^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_1|\hat{1}_\alpha^+\hat{1}_\alpha^-|K_0\rangle t_{A_9,B_{11}}t_{K_1}t_{I_9,J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^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_1|\hat{1}_\beta^+\hat{1}_\beta^-|K_0\rangle t_{A_9,B_{11}}t_{K_1}t_{I_9,J_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K0^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_9,B_{11}}t_{K_1}t_{I_9,J_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|1^K1^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_9,B_{11}}t_{K_1}t_{I_9,J_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J0^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_9,J_{12}}t_{B_{11},I_9}t_{K_1} \\ &+ \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_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_9,J_{12}}t_{B_{11},I_9}t_{K_1} \\ &+ \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_1|\hat{0}_\beta^+\hat{0}_\beta^-|K_0\rangle t_{A_9,J_{12}}t_{B_{11},I_9}t_{K_1} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K0^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}_\alpha^-|K_0\rangle t_{A_9,J_{12}}t_{B_{11},I_9}t_{K_1} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K0^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_9,J_{12}}t_{B_{11},I_9}t_{K_1} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K0^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^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|K_0\rangle t_{A_9,J_{12}}t_{B_{11},I_9}t_{K_1} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K0^K\rangle\langle I_9|\hat{0}_\alpha^-|I_0\rangle\langle I_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_1|\hat{0}_\alpha^+|I_0\rangle\langle I_10^\lambda|I$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{14},K_{1})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{7},J_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{7},J_{14}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{7},J_{14}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{7},J_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{7},J_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{7},J_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{12},K_{2})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle \langle K_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle \langle K_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle \langle K_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &+\frac{-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_{9},B_{11}}t_{K_{2}}t_{I_{9},J_{12}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}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_{9},B_{11}}t_{K_{2}}t_{I_{9},J_{12}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{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_{9},B_{11}}t_{K_{2}}t_{I_{9},J_{12}}\\ &+\frac{-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_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{2}}\\ &+\frac{-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_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{2}}\\ &+\frac{-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}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{2}}\\ &+\frac{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}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{K}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_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}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_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}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_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}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$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}t_{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_9,B_{11}}t_{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_9,B_{11}}t_{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}^-_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{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_9,B_{11}}t_{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{0}^+_{\alpha}\hat{1}^-_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{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}^+_{\alpha}\hat{1}^-_{\alpha}|K_0\rangle t_{A_9,J_{12}}t_{B_{11},I_9}t_{K_3}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^K|\hat{0}^-_{\alpha}|I_0\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle I_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|K_0\rangle t_{A_9,J_{12}}t_{B_{11},I_9}t_{K_3}\\ &+ \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_9,J_{12}}t_{B_{11},I_9}t_{K_3}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{14},K_{2})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle \langle K_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{7},J_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle \langle K_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{7},J_{14}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{7},J_{14}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{7},J_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{7},J_{14}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{7},J_{14}}\\ \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_7,J_{14},K_3)\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_7,J_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_7,J_{14}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_7,J_{14}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_7,J_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_7,J_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_7,J_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{L}\sum_{K}\langle 0^I0^K|\hat{g}|0^J1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_7,J_{14}} \\ \end{pmatrix}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{10},J_{12},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_{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_9,B_{11}}t_{K_{1}}t_{I_{10},J_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{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_9,B_{11}}t_{K_{1}}t_{I_{10},J_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{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_9,B_{11}}t_{K_{1}}t_{I_{10},J_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{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_9,B_{11}}t_{K_{1}}t_{I_{10},J_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{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_9,B_{11}}t_{K_{1}}t_{I_{10},J_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{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_9,B_{11}}t_{K_{1}}t_{I_{10},J_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{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_9,B_{11}}t_{K_{1}}t_{I_{10},J_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{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_9,J_{12}}t_{B_{11},I_{10}}t_{K_{1}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{J}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{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_9,J_{12}}t_{B_{11},I_{10}}t_{K_{1}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{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_9,J_{12}}t_{B_{11},I_{10}}t_{K_{1}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{J}\sum_{K}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{14},K_{1})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{8},J_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{8},J_{14}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{8},J_{14}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{8},J_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{8},J_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{8},J_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{10},J_{12},K_2)\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_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}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}_{\alpha}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_9,J_{12}}t_{B_{11},I_{10}}t_{K_2}\\ &+ \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_9,J_{12}}t_{B_{11},I_{10}}t_{K_2}\\ &+ \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_9,J_{12}}t_{B_{11},I_{10}}t_{K_2}\\ &+ \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_9,J_{12}}t_{B_{11},I_{10}}t_{K_2}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\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}^+|J_0\rangle\langle K_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,J_{12}}t_{B_{11},I_{10}}t_{K_2}\\ &+ \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}^+|J_0\rangle\langle I_{10$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{12},K_{3})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{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_{9},B_{11}}t_{K_{3}}t_{I_{10},J_{12}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{K_{3}}t_{I_{10},J_{12}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{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_{9},B_{11}}t_{K_{3}}t_{I_{10},J_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{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_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{3}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{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_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{3}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{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}_{\beta}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{3}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{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_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{3}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{K}\rangle\langle I_{10}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle I_{12}|\hat{0}_{\alpha$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{14},K_{2})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{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_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{8},J_{14}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{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_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{8},J_{14}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{K_{2}}t_{I_{8},J_{14}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{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_{9},B_{11}}t_{K_{2}}t_{I_{8},J_{14}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{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_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{8},J_{14}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{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_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{8},J_{14}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{8}|\hat{g}|0^{J}1^{K}\rangle\langle I_{8}|\hat{g}|0^{J}1^{K}\rangle\langle I_{8}|\hat{g}|0^{J}1^{K}\rangle\langle I_{8}|\hat{g}|0^{J}1^{K}\rangle\langle I_{8}|0^{J}1^{K}\rangle\langle I_{8}|0^{J}1^{K}\rangle\langle I_{8}|0^{J}1^{K}\rangle\langle I_{8}|0^{J}1^{K}\rangle\langle I_{8}|$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{14},K_{3})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{8},J_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{8},J_{14}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{8},J_{14}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{8},J_{14}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{A_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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{0}^+_{\alpha}\hat{0}^-_{\alpha}|K_0\rangle t_{A_9,B_{11}}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_{A_9,J_{11}}t_{B_{11},I_9}t_{K_1} \\ &+ \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_9,J_{11}}t_{B_{11},I_9}t_{K_1} \\ &+ \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{0}^+_{\alpha}\hat{0}^-_{\alpha}|K_0\rangle t_{A_9,J_{11}}t_{B_{11},I_9}t_{K_1} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^K|\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_9,J_{11}}t_{B_{11},I_9}t_{K_1} \\ &+ \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_9,J_{11}}t_{B_{11},I_9}t_{K_1} \\ &+ \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_9,J_{11}}t_{B_{11},I_9}t_{K_1} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_7,J_{13},K_1)\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_9,B_{11}}t_{K_1}t_{I_7,J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_9,B_{11}}t_{K_1}t_{I_7,J_{13}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|0^K0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_9,B_{11}}t_{K_1}t_{I_7,J_{13}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|1^K1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\beta}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{K_1}t_{I_7,J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|1^J0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{K_1}t_{I_7,J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{K_1}t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{11},K_{2})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{K_{2}}t_{I_{9},J_{11}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{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_{9},B_{11}}t_{K_{2}}t_{I_{9},J_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{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_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{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_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{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_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{2}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{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_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{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_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{2}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}1^{K}|\hat{g}|0^{K}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_{11},K_3)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^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_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha} |K_0\rangle t_{A_9,B_{11}} t_{K_3} t_{I_9,J_{11}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^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_3|\hat{0}^+_{\beta}\hat{1}^-_{\beta} |K_0\rangle t_{A_9,B_{11}} t_{K_3} t_{I_9,J_{11}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^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_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha} |K_0\rangle t_{A_9,B_{11}} t_{K_3} t_{I_9,J_{11}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^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_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha} |K_0\rangle t_{A_9,B_{11}} t_{K_3} t_{I_9,J_{11}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 1^J |\hat{g}| 0^K 1^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_9,B_{11}} t_{K_3} t_{I_9,J_{11}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 1^J |\hat{g}| 1^K 0^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_9,B_{11}} t_{K_3} t_{I_9,J_{11}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^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_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha} |K_0\rangle t_{A_9,J_{11}} t_{B_{11},I_9} t_{K_3} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^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_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha} |K_0\rangle t_{A_9,J_{11}} t_{B_{11},I_9} t_{K_3} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^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_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha} |K_0\rangle t_{A_9,J_{11}} t_{B_{11},I_9} t_{K_3} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^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_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha} |K_0\rangle t_{A_9,J_{11}} t_{B_{11},I_9} t_{K_3} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^I 0^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_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha} |K_0\rangle t_{A_9,J_{11}} t_{B_{11},I_9} t_{K_3} \\ &+ \frac{1}{12} \sum_{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{13},K_{2})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle \langle K_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{7},J_{13}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle \langle K_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{7},J_{13}} \\ &+ \frac{1}{12} \sum_{I} \sum_{L} \sum_{K} \langle 0^{I}1^{J}|\hat{g}|0^{K}1^{K}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle \langle K_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{7},J_{13}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{7},J_{13}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{7},J_{13}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{2}}t_{I_{7},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_7,J_{13},K_3)\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_7,J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_7,J_{13}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|0^K1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_7,J_{13}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I1^J|\hat{g}|1^K0^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_7,J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_7,J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_7,J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^I0^K|\hat{g}|1^J1^K\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|K_0\rangle t_{A_9,B_{11}}t_{K_3}t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{13},K_{1})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{8},J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{8},J_{13}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{8},J_{13}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{8},J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{8},J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{1}}t_{I_{8},J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{10},J_{11},K_2)\rangle = \\ &+ \frac{-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_9,B_{11}} t_{K_2} t_{I_{10},J_{11}} \\ &+ \frac{-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_9,B_{11}} t_{K_2} t_{I_{10},J_{11}} \\ &+ \frac{-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_9,B_{11}} t_{K_2} t_{I_{10},J_{11}} \\ &+ \frac{-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_9,B_{11}} t_{K_2} t_{I_{10},J_{11}} \\ &+ \frac{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_9,B_{11}} t_{K_2} t_{I_{10},J_{11}} \\ &+ \frac{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{0}_{\alpha}^+ \hat{1}_{\alpha}^- |K_0\rangle t_{A_9,B_{11}} t_{K_2} t_{I_{10},J_{11}} \\ &+ \frac{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_9,J_{11}} t_{B_{11},I_{10}} t_{K_2} \\ &+ \frac{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_9,J_{11}} t_{B_{11},I_{10}} t_{K_2} \\ &+ \frac{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_9,J_{11}} t_{B_{11},I_{10}} t_{K_2} \\ &+ \frac{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_9,J_{11}} t_{B_{11},I_{10}} t_{K_2} \\ &+ \frac{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}_{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{11},K_{3})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{10},J_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{10},J_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{10},J_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{10},J_{11}}\\ \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_8,J_{13},K_2)\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{K_2}t_{I_8,J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{K_2}t_{I_8,J_{13}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^J|\hat{g}|0^K1^K\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{K_2}t_{I_8,J_{13}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I1^J|\hat{g}|1^K0^K\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_2|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|K_0\rangle t_{A_9,B_{11}}t_{K_2}t_{I_8,J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{K_2}t_{I_8,J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{L}\sum_{K}\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_2|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{K_2}t_{I_8,J_{13}} \\ &+ \frac{-1}{12}\sum_{L}\sum_{L}\sum_{K}\langle 1^I0^K|\hat{g}|1^J1^K\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_2|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|K_0\rangle t_{A_9,B_{11}}t_{K_2}t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{13},K_{3})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{8},J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{8},J_{13}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{8},J_{13}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{8},J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{K_{3}}t_{I_{8},J_{13}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},B_{11}}t_{A_{11}}t_{A_{12}} \\ &+ \frac{-1}{12}\sum_{L}\sum_{L}\sum_{L}\sum_{L}\langle 1^{$$

$$\langle (A_9, B_{11})|\hat{H}|(A_{11}, B_{11}, I_9, J_9)\rangle =$$

$$\begin{split} &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^{A}1^{A}|\hat{g}|0^{I}0^{J}\rangle\langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^{A}1^{A}|\hat{g}|0^{J}0^{I}\rangle\langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{A}1^{A}|\hat{g}|0^{J}0^{I}\rangle\langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{A}1^{A}|\hat{g}|0^{I}0^{J}\rangle\langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{A}1^{A}|\hat{g}|0^{J}0^{J}\rangle\langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^{A}1^{A}|\hat{g}|0^{J}0^{I}\rangle\langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^{A}1^{A}|\hat{g}|0^{J}0^{I}\rangle\langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^{A}1^{A}|\hat{g}|0^{I}0^{J}\rangle\langle A_{11}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{8}\sum_{I}\sum_{J}\langle 0^{A}1^{A}|\hat{g}|0^{I}0^{J}\rangle\langle A_{11}|\hat{0}_{\alpha}^{+}|A_{11}|\hat{0}_{\alpha}^{+}|A_$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{13},B_{11},I_9,J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A |\hat{g}|0^I 0^J \rangle \langle A_{13}|\hat{0}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle I_9|\hat{0}_{\alpha}^- |I_0\rangle \langle J_7|\hat{0}_{\beta}^- |J_0\rangle t_{A_{13},J_7} t_{B_{11},I_9} \end{split}$$

$$\langle (A_{9}, B_{11}) | \hat{H} | (A_{11}, B_{11}, I_{9}, J_{10}) \rangle =$$

$$+ \frac{1}{8} \sum_{I} \sum_{J} \langle 0^{A} 1^{A} | \hat{g} | 0^{I} 1^{J} \rangle \langle A_{11} | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle t_{A_{11}, I_{9}} t_{B_{11}, J_{10}}$$

$$+ \frac{1}{8} \sum_{I} \sum_{J} \langle 0^{A} 1^{A} | \hat{g} | 1^{J} 0^{I} \rangle \langle A_{11} | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle t_{A_{11}, I_{9}} t_{B_{11}, J_{10}}$$

$$+ \frac{-1}{8} \sum_{I} \sum_{J} \langle 0^{A} 1^{A} | \hat{g} | 1^{J} 0^{I} \rangle \langle A_{11} | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle t_{A_{11}, I_{9}} t_{B_{11}, J_{10}}$$

$$+ \frac{-1}{8} \sum_{I} \sum_{J} \langle 0^{A} 1^{A} | \hat{g} | 0^{I} 1^{J} \rangle \langle A_{11} | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle t_{A_{11}, J_{10}} t_{B_{11}, I_{9}}$$

$$+ \frac{-1}{8} \sum_{I} \sum_{J} \langle 0^{A} 1^{A} | \hat{g} | 1^{J} 0^{I} \rangle \langle A_{11} | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle t_{A_{11}, J_{10}} t_{B_{11}, I_{9}}$$

$$+ \frac{1}{8} \sum_{I} \sum_{J} \langle 0^{A} 1^{A} | \hat{g} | 1^{J} 0^{I} \rangle \langle A_{11} | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle t_{A_{11}, J_{10}} t_{B_{11}, I_{9}}$$

$$+ \frac{1}{8} \sum_{I} \sum_{J} \langle 0^{A} 1^{A} | \hat{g} | 0^{I} 1^{J} \rangle \langle A_{11} | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle t_{A_{11}, J_{10}} t_{B_{11}, I_{9}}$$

$$+ \frac{1}{8} \sum_{I} \sum_{J} \langle 0^{A} 1^{A} | \hat{g} | 0^{I} 1^{J} \rangle \langle A_{11} | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle t_{A_{11}, J_{10}} t_{B_{11}, I_{9}}$$

$$+ \frac{1}{8} \sum_{I} \sum_{J} \langle 0^{A} 1^{A} | \hat{g} | 0^{I} 1^{J} \rangle \langle A_{11} | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{10} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{10} \rangle t_{A_{11}, J_{10}} t_{B_{11}, I_{9}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{13},B_{11},I_9,J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{I} \langle 0^A 1^A |\hat{g}|0^I 1^J \rangle \langle A_{13}|\hat{0}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle I_9|\hat{0}_{\alpha}^- |I_0\rangle \langle J_8|\hat{1}_{\beta}^- |J_0\rangle t_{A_{13},J_8} t_{B_{11},I_9} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{11},B_{11},I_{10},J_{9})\rangle = \\ &+ \frac{1}{8} \sum_{I} \sum_{J} \langle 0^{A}1^{A}|\hat{g}|1^{I}0^{J}\rangle \langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_{9}\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}{8} \sum_{I} \sum_{J} \langle 0^{A}1^{A}|\hat{g}|0^{J}1^{I}\rangle \langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_{9}\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}{8} \sum_{I} \sum_{J} \langle 0^{A}1^{A}|\hat{g}|0^{J}1^{I}\rangle \langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_{9}\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}{8} \sum_{I} \sum_{J} \langle 0^{A}1^{A}|\hat{g}|1^{I}0^{J}\rangle \langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_{9}\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}{8} \sum_{I} \sum_{J} \langle 0^{A}1^{A}|\hat{g}|0^{J}1^{I}\rangle \langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_{9}\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}{8} \sum_{I} \sum_{J} \langle 0^{A}1^{A}|\hat{g}|0^{J}1^{I}\rangle \langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_{9}\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}{8} \sum_{I} \sum_{J} \langle 0^{A}1^{A}|\hat{g}|0^{J}1^{I}\rangle \langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_{9}\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}{8} \sum_{I} \sum_{J} \langle 0^{A}1^{A}|\hat{g}|1^{I}0^{J}\rangle \langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_{9}\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}{8} \sum_{I} \sum_{J} \langle 0^{A}1^{A}|\hat{g}|1^{I}0^{J}\rangle \langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_{9}\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}{8} \sum_{I} \sum_{J} \langle 0^{A}1^{A}|\hat{g}|1^{I}0^{J}\rangle \langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_{9}\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}{8} \sum_{I} \sum_{J} \langle 0^{A}1^{A}|\hat{g}|1^{I}0^{J}\rangle \langle A_{11}|\hat{0}_{\alpha}^{+}|A_{11}|\hat{0}_{\alpha}^{+}|A_{11}|\hat{0}_{\alpha}^{$$

$$\langle (A_9, B_{11})|\hat{H}|(A_{13}, B_{11}, I_{10}, J_7)\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A |\hat{g}|1^I 0^J \rangle \langle A_{13}|\hat{0}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_7|\hat{0}_{\beta}^- |J_0\rangle t_{A_{13}, J_7} t_{B_{11}, I_{10}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{13},B_{11},I_{10},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A |\hat{g}| 1^I 1^J \rangle \langle A_{13} |\hat{0}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle t_{A_{13},J_8} t_{B_{11},I_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},B_{11},I_9,J_7)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 1^A |\hat{g}|0^I 0^J \rangle \langle A_{14}|\hat{1}^+_\alpha \hat{1}^+_\beta |A_9\rangle \langle I_9|\hat{0}^-_\alpha |I_0\rangle \langle J_7|\hat{0}^-_\beta |J_0\rangle t_{A_{14},J_7} t_{B_{11},I_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},B_{11},I_9,J_8)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 1^A |\hat{g}|0^I 1^J \rangle \langle A_{14} |\hat{1}_\alpha^+ \hat{1}_\beta^+ |A_9\rangle \langle I_9 |\hat{0}_\alpha^- |I_0\rangle \langle J_8 |\hat{1}_\beta^- |J_0\rangle t_{A_{14},J_8} t_{B_{11},I_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},B_{11},I_{10},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^A |\hat{g}|1^I 0^J \rangle \langle A_{14}|\hat{1}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_7|\hat{0}_{\beta}^- |J_0\rangle t_{A_{14},J_7} t_{B_{11},I_{10}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_{14}, B_{11}, I_{10}, J_8)\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^A |\hat{g}|1^I 1^J \rangle \langle A_{14}|\hat{1}^+_{\alpha} \hat{1}^+_{\beta} |A_9\rangle \langle I_{10}|\hat{1}^-_{\alpha} |I_0\rangle \langle J_8|\hat{1}^-_{\beta} |J_0\rangle t_{A_{14}, J_8} t_{B_{11}, I_{10}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{13},B_{11},I_7,J_9)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A |\hat{g}|0^J 0^I \rangle \langle A_{13}|\hat{0}^+_{\alpha}\hat{1}^+_{\beta} |A_9\rangle \langle I_7|\hat{0}^-_{\beta} |I_0\rangle \langle J_9|\hat{0}^-_{\alpha} |J_0\rangle t_{A_{13},I_7} t_{B_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{13},B_{11},I_8,J_9)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A |\hat{g}|0^J 1^I \rangle \langle A_{13}|\hat{0}^+_\alpha \hat{1}^+_\beta |A_9\rangle \langle I_8|\hat{1}^-_\beta |I_0\rangle \langle J_9|\hat{0}^-_\alpha |J_0\rangle t_{A_{13},I_8} t_{B_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{13},B_{11},I_7,J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{I} \langle 0^A 1^A |\hat{g}|1^J 0^I \rangle \langle A_{13}|\hat{0}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle I_7|\hat{0}_{\beta}^- |I_0\rangle \langle J_{10}|\hat{1}_{\alpha}^- |J_0\rangle t_{A_{13},I_7} t_{B_{11},J_{10}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_{13}, B_{11}, I_8, J_{10})\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A |\hat{g}|1^J 1^I \rangle \langle A_{13}|\hat{0}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle I_8|\hat{1}_{\beta}^- |I_0\rangle \langle J_{10}|\hat{1}_{\alpha}^- |J_0\rangle t_{A_{13}, I_8} t_{B_{11}, J_{10}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},B_{11},I_7,J_9)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 1^A |\hat{g}| 0^I 0^J \rangle \langle A_{14} |\hat{1}^+_\alpha \hat{1}^+_\beta |A_9\rangle \langle I_7 |\hat{0}^-_\beta |I_0\rangle \langle J_9 |\hat{0}^-_\alpha |J_0\rangle t_{A_{14},I_7} t_{B_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},B_{11},I_8,J_9)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 1^A |\hat{g}|1^I 0^J \rangle \langle A_{14}|\hat{1}^+_\alpha \hat{1}^+_\beta |A_9\rangle \langle I_8|\hat{1}^-_\beta |I_0\rangle \langle J_9|\hat{0}^-_\alpha |J_0\rangle t_{A_{14},I_8} t_{B_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},B_{11},I_7,J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^A |\hat{g}|0^I 1^J \rangle \langle A_{14}|\hat{1}^+_{\alpha} \hat{1}^+_{\beta} |A_9\rangle \langle I_7|\hat{0}^-_{\beta} |I_0\rangle \langle J_{10}|\hat{1}^-_{\alpha} |J_0\rangle t_{A_{14},I_7} t_{B_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},B_{11},I_8,J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^A |\hat{g}|1^I 1^J \rangle \langle A_{14}|\hat{1}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle I_8|\hat{1}_{\beta}^- |I_0\rangle \langle J_{10}|\hat{1}_{\alpha}^- |J_0\rangle t_{A_{14},I_8} t_{B_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_{11},I_{14},J_7)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|1^A 0^J \rangle \langle A_{10}|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|A_9\rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_{10},B_{11}} t_{I_{14},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A |\hat{g}|0^I 0^J \rangle \langle A_{10}|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|A_9\rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_{10},B_{11}} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_{11},I_{14},J_8)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^A 1^J \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_{14}| \hat{0}^+_{\beta} |I_0\rangle \langle J_8| \hat{1}^-_{\beta} |J_0\rangle t_{A_{10},B_{11}} t_{I_{14},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A |\hat{g}| 0^I 1^J \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_{14}| \hat{0}^+_{\beta} |I_0\rangle \langle J_8| \hat{1}^-_{\beta} |J_0\rangle t_{A_{10},B_{11}} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_{11},I_{13},J_7)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^A 0^J \rangle \langle A_{10}|\hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_{13}|\hat{1}^+_{\beta} |I_0\rangle \langle J_7|\hat{0}^-_{\beta} |J_0\rangle t_{A_{10},B_{11}} t_{I_{13},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A |\hat{g}| 1^I 0^J \rangle \langle A_{10}|\hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_{13}|\hat{1}^+_{\beta} |I_0\rangle \langle J_7|\hat{0}^-_{\beta} |J_0\rangle t_{A_{10},B_{11}} t_{I_{13},J_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_{10}, B_{11}, I_{13}, J_8)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 1^J\rangle \langle A_{10}|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|A_9\rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_{10}, B_{11}}t_{I_{13}, J_8}$$

$$+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^A|\hat{g}|1^I 1^J\rangle \langle A_{10}|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|A_9\rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_{10}, B_{11}}t_{I_{13}, J_8}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{1},J_{9})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{I}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{9}}t_{I_{1}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{I}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{9}}t_{I_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{J}0^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{9}}t_{I_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{J}0^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{9}}t_{I_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{9}}t_{I_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{9}}t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_1,J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_1,I_1}t_{B_{11},J_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^I0^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_1,I_1}t_{B_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J0^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_1,I_1}t_{B_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J0^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_1|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_1,I_1}t_{B_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^J1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_1,I_1}t_{B_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^J1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_1|\hat{1}^+_{\beta}\hat{1}^-_{\beta}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_1,I_1}t_{B_{11},J_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_1} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^I0^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_1|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_1} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{J}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{1}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{J}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{1}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{1}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{1},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{10}}t_{I_{1}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{10}}t_{I_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{10}}t_{I_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{10}}t_{I_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{10}}t_{I_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{10}}t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_1,J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^I1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J0^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_1|\hat{0}^+_{\alpha}|A_9\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^J1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_1|\hat{0}^-_{\alpha}|A_9\rangle\langle I_1|\hat{0}^-_{\alpha}|A_9\rangle\langle I_1|\hat{0$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_2,J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_0|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_2|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle t_{B_{11},J_9}t_{I_2} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_0|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_2|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle t_{B_{11},J_9}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_0|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_2|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle t_{B_{11},J_9}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_0|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_2|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle t_{B_{11},J_9}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_0|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_2|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle t_{B_{11},J_9}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_0|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_2|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle t_{B_{11},J_9}t_{I_2} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_3,J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{B_{11},J_9}t_{I_3} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{B_{11},J_9}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{B_{11},J_9}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_3|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{B_{11},J_9}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{B_{11},J_9}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_3|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{B_{11},J_9}t_{I_3} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_2,J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\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 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_1|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_2|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_2|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_1|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_2|\hat{0}_{\alpha}^{+}|A_9\rangle$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{2}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_3,J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^I0^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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 0^A1^I|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\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 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_3|\hat{0}^+_{\alpha}|A_9\rangle\langle I_3|\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_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_3|\hat{0}^+_{\alpha}|A_9\rangle\langle I_3|\hat{0$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_2,J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^I1^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_2|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{B_{11},J_{10}}t_{I_2} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{3},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{10}}t_{I_{3}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{10}}t_{I_{3}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{10}}t_{I_{3}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{10}}t_{I_{3}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{10}}t_{I_{3}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},J_{10}}t_{I_{3}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_2,J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^I1^J\rangle\langle A_1|\hat{0}_\alpha^+|A_9\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 0^A1^I|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}_\alpha^+|A_9\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 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_1|\hat{0}_\alpha^+|A_9\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 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_1|\hat{0}_\alpha^+|A_9\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 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_1|\hat{0}_\alpha^+|A_9\rangle\langle I_2|\hat{0}_\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 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_1|\hat{0}_\alpha^+|A_9\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 0^A0^I|\hat{g}|1^J1^J\rangle\langle A_1|\hat{0}_\alpha^+|A_9\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 0^A0^I|\hat{g}|1^J1^J\rangle\langle A_1|\hat{0}_\alpha^+|A_9\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 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_1|\hat{0}_\alpha^+|A_9\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 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_1|\hat{0}_\alpha^+|A_9\rangle\langle I_2|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J1^I\rangle\langle A_1|\hat{0}_\alpha^+|A_9\rangle\langle I_2|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{10}|\hat{0}_\alpha^-|J_0\rangle t_{A_1}t_{B_{11},J_{10}}t_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{3},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},I_{3}}t_{B_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},I_{3}}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},I_{3}}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},I_{3}}t_{B_{11},J_{10}} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{J}1^{J}\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{4}\sum_{J}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{J}1^{J}1^{J}\langle A_{1}|\hat{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_1,J_9)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A}0^{I}|\hat{g}|0^{I}0^{J}\rangle \langle A_2|\hat{1}^{+}_{\alpha}|A_9\rangle \langle I_1|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_0\rangle \langle J_9|\hat{0}^{-}_{\alpha}|J_0\rangle t_{A_2,I_1}t_{B_{11},J_9} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{I}|\hat{g}|1^{I}0^{J}\rangle \langle A_2|\hat{1}^{+}_{\alpha}|A_9\rangle \langle I_1|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_0\rangle \langle J_9|\hat{0}^{-}_{\alpha}|J_0\rangle t_{A_2,I_1}t_{B_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}0^{I}|\hat{g}|0^{J}0^{I}\rangle \langle A_2|\hat{1}^{+}_{\alpha}|A_9\rangle \langle I_1|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_0\rangle \langle J_9|\hat{0}^{-}_{\alpha}|J_0\rangle t_{A_2,I_1}t_{B_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}0^{I}|\hat{g}|0^{J}0^{I}\rangle \langle A_2|\hat{1}^{+}_{\alpha}|A_9\rangle \langle I_1|\hat{0}^{+}_{\beta}\hat{0}^{-}_{\beta}|I_0\rangle \langle J_9|\hat{0}^{-}_{\alpha}|J_0\rangle t_{A_2,I_1}t_{B_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{I}|\hat{g}|0^{J}1^{I}\rangle \langle A_2|\hat{1}^{+}_{\alpha}|A_9\rangle \langle I_1|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_0\rangle \langle J_9|\hat{0}^{-}_{\alpha}|J_0\rangle t_{A_2,I_1}t_{B_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{I}|\hat{g}|0^{J}1^{I}\rangle \langle A_2|\hat{1}^{+}_{\alpha}|A_9\rangle \langle I_1|\hat{1}^{+}_{\beta}\hat{1}^{-}_{\beta}|I_0\rangle \langle J_9|\hat{0}^{-}_{\alpha}|J_0\rangle t_{A_2,I_1}t_{B_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}0^{I}|\hat{g}|0^{J}0^{J}\rangle \langle A_2|\hat{1}^{+}_{\alpha}|A_9\rangle \langle I_1|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_0\rangle \langle J_9|\hat{0}^{-}_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_9}t_{I_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}0^{I}|\hat{g}|0^{J}0^{I}\rangle \langle A_2|\hat{1}^{+}_{\alpha}|A_9\rangle \langle I_1|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_0\rangle \langle J_9|\hat{0}^{-}_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_9}t_{I_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}0^{I}|\hat{g}|0^{J}0^{I}\rangle \langle A_2|\hat{1}^{+}_{\alpha}|A_9\rangle \langle I_1|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_0\rangle \langle J_9|\hat{0}^{-}_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_9}t_{I_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}0^{I}|\hat{g}|0^{J}0^{I}\rangle \langle A_2|\hat{1}^{+}_{\alpha}|A_9\rangle \langle I_1|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_0\rangle \langle J_9|\hat{0}^{-}_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_9}t_{I_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{I}|\hat{g}|0^{J}1^{I}\rangle \langle A_2|\hat{1}^{+}_{\alpha}|A_9\rangle \langle I_1|\hat{0}^{+}_{\alpha}\hat{0}^{-}_{\beta}|I_0\rangle \langle J_9|\hat{0}^{-}_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_9}t_{I_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{I}|\hat{g}|0^{J}1^{I}\rangle \langle A_2|\hat{1}^{+}_{\alpha}|A_9\rangle \langle I_1|\hat{1}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_0\rangle \langle J_9|\hat{0}^{-}_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_9}t_{I_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{1},J_{9})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A}0^{I}|\hat{g}|0^{I}0^{J}\rangle \langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{1}}t_{B_{11},J_{9}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{I}|\hat{g}|1^{I}0^{J}\rangle \langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{1}}t_{B_{11},J_{9}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}0^{I}|\hat{g}|0^{J}0^{I}\rangle \langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{1}}t_{B_{11},J_{9}} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{1}}t_{B_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{1}}t_{B_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{1}}t_{B_{11},J_{9}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{1}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\alpha}$$

$$\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_1,J_{10})\rangle = \\ + \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^I 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_1 |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0 \rangle t_{A_2,I_1} t_{B_{11},J_{10}} \\ + \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|1^I 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_1 |\hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0 \rangle t_{A_2,I_1} t_{B_{11},J_{10}} \\ + \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|1^J 0^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_1 |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0 \rangle t_{A_2,I_1} t_{B_{11},J_{10}} \\ + \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|1^J 0^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_1 |\hat{0}_{\beta}^+ \hat{0}_{\beta}^- |I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0 \rangle t_{A_2,I_1} t_{B_{11},J_{10}} \\ + \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|1^J 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_1 |\hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0 \rangle t_{A_2,I_1} t_{B_{11},J_{10}} \\ + \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|1^J 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_1 |\hat{1}_{\beta}^+ \hat{1}_{\beta}^- |I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0 \rangle t_{A_2,I_1} t_{B_{11},J_{10}} \\ + \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^I 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_1 |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0 \rangle t_{A_2} t_{B_{11},J_{10}} t_{I_1} \\ + \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|1^J 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_1 |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0 \rangle t_{A_2} t_{B_{11},J_{10}} t_{I_1} \\ + \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|1^J 0^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_1 |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0 \rangle t_{A_2} t_{B_{11},J_{10}} t_{I_1} \\ + \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|1^J 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_1 |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0 \rangle t_{A_2} t_{B_{11},J_{10}} t_{I_1} \\ + \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|1^J 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_1 |\hat{0}_{\beta}^+ \hat{0}_{\beta}^- |I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0 \rangle t_{A_2} t_{B_{11},J_{10}} t_{I_1} \\ + \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|1^J 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_1 |\hat{0}_{\beta}^+ \hat{0}_{\beta}^- |I_0 \rangle \langle J_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{1},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{1}}t_{B_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{1}}t_{B_{11},J_{10}} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{1}}t_{B_{11},J_{10}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{1}}t_{B_{11},J_{10}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{1}}t_{B_{11},J_{10}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{1}}t_{B_{11},J_{10}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{1}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11,J_{10}}}t_{I_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{J}1^{J}1^{J}1^{J}1^{J}1^{J}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_2,J_9)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 1^I 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_2 |\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_2,I_2} t_{B_{11},J_9} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 0^I 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_2 |\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_2,I_2} t_{B_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 0^J 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_2 |\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_2,I_2} t_{B_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 0^J 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_2 |\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_2,I_2} t_{B_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 0^J 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_2 |\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_2,I_2} t_{B_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 0^J 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_2 |\hat{1}^+_{\beta}\hat{0}^-_{\beta}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_2,I_2} t_{B_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 0^J 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_2 |\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_2,I_2} t_{B_{11},J_9} t_{I_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 0^J 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_2 |\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_2} t_{B_{11},J_9} t_{I_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 0^J 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_2 |\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_2} t_{B_{11},J_9} t_{I_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 0^J 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_2 |\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_2} t_{B_{11},J_9} t_{I_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 0^J 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_2 |\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_2} t_{B_{11},J_9} t_{I_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 0^J 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_2 |\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0 \rangle \langle I_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_2} t_{B_{11},J_9} t_{I_2} \\ &+ \frac{1}{4$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_3, J_9)\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 1^I 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_3 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle t_{A_2, I_3} t_{B_{11}, J_9}$$

$$\begin{split} &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{I}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},I_{3}}t_{B_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},I_{3}}t_{B_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},I_{3}}t_{B_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},I_{3}}t_{B_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},I_{3}}t_{B_{11},J_{9}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{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_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{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_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{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_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{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_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{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_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{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_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}|$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_2,J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|1^{I_0J}\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,I_2}t_{B_{11},J_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A_1I}|\hat{g}|0^{I_0J}\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,I_2}t_{B_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|0^{J_1I}\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,I_2}t_{B_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|0^{J_1I}\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,I_2}t_{B_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|0^{J_1I}\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,I_2}t_{B_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|0^{J_1I}\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,I_2}t_{B_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|1^{I_0J}\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_{11},J_9}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|0^{J_1I}\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_{11},J_9}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|0^{J_1I}\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_{11},J_9}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|0^{J_1I}\rangle\langle A_3|\hat{1}^+_{\alpha}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_3, J_9)\rangle =$$

$$\begin{split} &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{3}}t_{B_{11},J_{9}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{3}}t_{B_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{3}}t_{B_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{3}}t_{B_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{3}}t_{B_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},I_{3}}t_{B_{11},J_{9}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{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_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{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_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{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_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{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_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{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_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}|A_{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_2,J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|1^{I}1^{J}\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,I_2}t_{B_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A_1I}|\hat{g}|0^{I}1^{J}\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,I_2}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|1^{J}1^{I}\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,I_2}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|1^{J}1^{I}\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,I_2}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|1^{J}1^{I}\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,I_2}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|1^{J}1^{I}\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,I_2}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|1^{J}1^{J}\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,I_2}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|1^{J}1^{J}\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|1^{J}1^{J}\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|1^{J}1^{I}\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|1^{J}1^{J}\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|1^{J}1^{J}1^{J}\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A_0I}|\hat{g}|1^{J}1^{J}1^{J}\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{1$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_3,J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,I_3}t_{B_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^I1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,I_3}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,I_3}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,I_3}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,I_3}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,I_3}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_{10}} t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_{10}} t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_{10}} t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_{10}} t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_{10}} t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_{11},J_{10}} t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_3|\hat{1}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle I_0|\hat{1}^-_{\alpha}|I_0\rangle\langle I_0|\hat{1}^-_{\alpha}|I_0\rangle\langle I_0|I_0|I_0|I_0|I_0 \\ &+ \frac{1}{4}\sum_{I}\sum_{J$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_2,J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,I_2}t_{B_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,I_2}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,I_2}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,I_2}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,I_2}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,I_2}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^J1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_{11},J_{10}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_3,J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{I}1^{J}\rangle\langle A_3|\hat{1}^{+}_{\alpha}|A_9\rangle\langle I_3|\hat{0}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^{-}_{\alpha}|J_0\rangle t_{A_3,I_3}t_{B_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{I}1^{J}\rangle\langle A_3|\hat{1}^{+}_{\alpha}|A_9\rangle\langle I_3|\hat{1}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^{-}_{\alpha}|J_0\rangle t_{A_3,I_3}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_3|\hat{1}^{+}_{\alpha}|A_9\rangle\langle I_3|\hat{0}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^{-}_{\alpha}|J_0\rangle t_{A_3,I_3}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_3|\hat{1}^{+}_{\alpha}|A_9\rangle\langle I_3|\hat{0}^{+}_{\beta}\hat{1}^{-}_{\beta}|I_0\rangle\langle J_{10}|\hat{1}^{-}_{\alpha}|J_0\rangle t_{A_3,I_3}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_3|\hat{1}^{+}_{\alpha}|A_9\rangle\langle I_3|\hat{1}^{+}_{\alpha}\hat{0}^{-}_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^{-}_{\alpha}|J_0\rangle t_{A_3,I_3}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle A_3|\hat{1}^{+}_{\alpha}|A_9\rangle\langle I_3|\hat{1}^{+}_{\beta}\hat{0}^{-}_{\beta}|I_0\rangle\langle J_{10}|\hat{1}^{-}_{\alpha}|J_0\rangle t_{A_3,I_3}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{J}\rangle\langle A_3|\hat{1}^{+}_{\alpha}|A_9\rangle\langle I_3|\hat{0}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^{-}_{\alpha}|J_0\rangle t_{A_3}t_{B_{11},J_{10}}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{J}\rangle\langle A_3|\hat{1}^{+}_{\alpha}|A_9\rangle\langle I_3|\hat{1}^{+}_{\alpha}|A_9\rangle\langle I_3|\hat{1}^{+}_{\alpha}|A_9\rangle\langle I_3|\hat{1}^{+}_{\alpha}|I_0\rangle\langle I_{10}|\hat{1}^{-}_{\alpha}|J_0\rangle t_{A_3}t_{B_{11},J_{10}}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{J}\rangle\langle A_3|\hat{1}^{\alpha}|A_9\rangle\langle I_3|\hat{1}^{+}_{\alpha}|A_9\rangle\langle I_3|\hat{1}^{+}_{\alpha}|I_0\rangle\langle I_0|\hat{1}^{$$

$$\langle (A_9, B_{11})|\hat{H}|(A_7, B_{11}, I_{14}, J_9)\rangle =$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^A |\hat{g}|0^I 0^J \rangle \langle A_7 |\hat{0}_{\alpha}^+ \hat{0}_{\beta}^- |A_9\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle t_{A_7, I_{14}} t_{B_{11}, J_9}$$

$$\langle (A_9, B_{11}) | \hat{H} | (A_7, B_{11}, I_{14}, J_{10}) \rangle =$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^A | \hat{g} | 0^I 1^J \rangle \langle A_7 | \hat{0}_{\alpha}^+ \hat{0}_{\beta}^- | A_9 \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle \langle J_{10} | \hat{1}_{\alpha}^- | J_0 \rangle t_{A_7, I_{14}} t_{B_{11}, J_{10}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_7, B_{11}, I_{13}, J_9)\rangle =$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^A |\hat{g}|1^I 0^J \rangle \langle A_7 |\hat{0}_{\alpha}^{+} \hat{0}_{\beta}^{-} |A_9\rangle \langle I_{13} |\hat{1}_{\beta}^{+} |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^{-} |J_0\rangle t_{A_7, I_{13}} t_{B_{11}, J_9}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_7, B_{11}, I_{13}, J_{10})\rangle =$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A} 0^{A} | \hat{g} | 1^{I} 1^{J} \rangle \langle A_{7} | \hat{0}_{\alpha}^{+} \hat{0}_{\beta}^{-} | A_{9} \rangle \langle I_{13} | \hat{1}_{\beta}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle t_{A_{7}, I_{13}} t_{B_{11}, J_{10}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_8,B_{11},I_{14},J_9)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A |\hat{g}|0^I 0^J \rangle \langle A_8 |\hat{1}_{\alpha}^+ \hat{0}_{\beta}^- |A_9 \rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0 \rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0 \rangle t_{A_8,I_{14}} t_{B_{11},J_9} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_8, B_{11}, I_{14}, J_{10})\rangle =$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A |\hat{g}|0^I 1^J \rangle \langle A_8 |\hat{1}_{\alpha}^+ \hat{0}_{\beta}^- |A_9\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0\rangle t_{A_8, I_{14}} t_{B_{11}, J_{10}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_8,B_{11},I_{13},J_9)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A |\hat{g}| 1^I 0^J \rangle \langle A_8 |\hat{1}_{\alpha}^+ \hat{0}_{\beta}^- |A_9 \rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0 \rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0 \rangle t_{A_8,I_{13}} t_{B_{11},J_9} \end{split}$$

$$\langle (A_9, B_{11}) | \hat{H} | (A_8, B_{11}, I_{13}, J_{10}) \rangle =$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A | \hat{g} | 1^I 1^J \rangle \langle A_8 | \hat{1}_{\alpha}^+ \hat{0}_{\beta}^- | A_9 \rangle \langle I_{13} | \hat{1}_{\beta}^+ | I_0 \rangle \langle J_{10} | \hat{1}_{\alpha}^- | J_0 \rangle t_{A_8, I_{13}} t_{B_{11}, J_{10}}$$

$$\langle (A_{9}, B_{11})|\hat{H}|(A_{10}, B_{11}, I_{7}, J_{14})\rangle =$$

$$+\frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A} 0^{I}|\hat{g}|1^{A} 0^{J}\rangle \langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{10}, B_{11}} t_{I_{7}, J_{14}}$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A} 1^{A}|\hat{g}|0^{J} 0^{I}\rangle \langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{10}, B_{11}} t_{I_{7}, J_{14}}$$

$$\langle (A_{9}, B_{11})|\hat{H}|(A_{10}, B_{11}, I_{8}, J_{14})\rangle =$$

$$+\frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A} 1^{I} |\hat{g}| 1^{A} 0^{J} \rangle \langle A_{10} |\hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} |A_{9}\rangle \langle I_{8} |\hat{1}_{\beta}^{-} |I_{0}\rangle \langle J_{14} |\hat{0}_{\beta}^{+} |J_{0}\rangle t_{A_{10}, B_{11}} t_{I_{8}, J_{14}}$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A} 1^{A} |\hat{g}| 0^{J} 1^{I} \rangle \langle A_{10} |\hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} |A_{9}\rangle \langle I_{8} |\hat{1}_{\beta}^{-} |I_{0}\rangle \langle J_{14} |\hat{0}_{\beta}^{+} |J_{0}\rangle t_{A_{10}, B_{11}} t_{I_{8}, J_{14}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{10},B_{11},I_{7},J_{13})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{A}1^{J}\rangle\langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{10},B_{11}}t_{I_{7},J_{13}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{A}|\hat{g}|1^{J}0^{I}\rangle\langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{10},B_{11}}t_{I_{7},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_{11},I_8,J_{13})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|1^A 1^J \rangle \langle A_{10}|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|A_9 \rangle \langle I_8|\hat{1}^-_{\beta}|I_0 \rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0 \rangle t_{A_{10},B_{11}} t_{I_8,J_{13}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A |\hat{g}|1^J 1^I \rangle \langle A_{10}|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|A_9 \rangle \langle I_8|\hat{1}^-_{\beta}|I_0 \rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0 \rangle t_{A_{10},B_{11}} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_7,B_{11},I_9,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^A |\hat{g}|0^I 0^J \rangle \langle A_7 |\hat{0}_{\alpha}^{+} \hat{0}_{\beta}^{-} |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^{-} |I_0 \rangle \langle J_{14} |\hat{0}_{\beta}^{+} |J_0 \rangle t_{A_7,J_{14}} t_{B_{11},I_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_7,B_{11},I_{10},J_{14})\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 0^A 0^A |\hat{g}| 1^I 0^J \rangle \langle A_7 |\hat{0}^+_\alpha \hat{0}^-_\beta |A_9\rangle \langle I_{10}|\hat{1}^-_\alpha |I_0\rangle \langle J_{14}|\hat{0}^+_\beta |J_0\rangle t_{A_7,J_{14}} t_{B_{11},I_{10}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_7, B_{11}, I_9, J_{13})\rangle =$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^A | \hat{g} | 0^I 1^J \rangle \langle A_7 | \hat{0}_{\alpha}^+ \hat{0}_{\beta}^- | A_9 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_7, J_{13}} t_{B_{11}, I_9}$$

$$\langle (A_9, B_{11}) | \hat{H} | (A_7, B_{11}, I_{10}, J_{13}) \rangle =$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^A | \hat{g} | 1^I 1^J \rangle \langle A_7 | \hat{0}_{\alpha}^+ \hat{0}_{\beta}^- | A_9 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_7, J_{13}} t_{B_{11}, I_{10}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_8, B_{11}, I_9, J_{14})\rangle =$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A | \hat{g} | 0^J 0^I \rangle \langle A_8 | \hat{1}_{\alpha}^+ \hat{0}_{\beta}^- | A_9 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{14} | \hat{0}_{\beta}^+ | J_0 \rangle t_{A_8, J_{14}} t_{B_{11}, I_9}$$

$$\langle (A_9, B_{11}) | \hat{H} | (A_8, B_{11}, I_{10}, J_{14}) \rangle =$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A | \hat{g} | 0^J 1^I \rangle \langle A_8 | \hat{1}_{\alpha}^+ \hat{0}_{\beta}^- | A_9 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{14} | \hat{0}_{\beta}^+ | J_0 \rangle t_{A_8, J_{14}} t_{B_{11}, I_{10}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_8,B_{11},I_9,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^A |\hat{g}| 1^J 0^I \rangle \langle A_8 |\hat{1}_{\alpha}^+ \hat{0}_{\beta}^- |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle t_{A_8,J_{13}} t_{B_{11},I_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_8,B_{11},I_{10},J_{13})\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 0^A 1^A |\hat{g}| 1^J 1^I \rangle \langle A_8 |\hat{1}_\alpha^+ \hat{0}_\beta^- |A_9\rangle \langle I_{10} |\hat{1}_\alpha^- |I_0\rangle \langle J_{13} |\hat{1}_\beta^+ |J_0\rangle t_{A_8,J_{13}} t_{B_{11},I_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_9,J_1)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle t_{B_{11},I_9}t_{J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|J_0\rangle t_{B_{11},I_9}t_{J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle t_{B_{11},I_9}t_{J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|J_0\rangle t_{B_{11},I_9}t_{J_1} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J0^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle t_{B_{11},I_9}t_{J_1} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J1^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle t_{B_{11},I_9}t_{J_1} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_9,J_1)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle t_{A_1,J_1}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|J_0\rangle t_{A_1,J_1}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle t_{A_1,J_1}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^J|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_1|\hat{1}_{\beta}^+\hat{1}_{\beta}^-|J_0\rangle t_{A_1,J_1}t_{B_{11},I_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle t_{A_1,J_1}t_{B_{11},I_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^J1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_1|\hat{1}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle t_{A_1,J_1}t_{B_{11},I_9} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{1}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{1}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_9,J_2)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle t_{B_{11},I_9}t_{J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|J_0\rangle t_{B_{11},I_9}t_{J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle t_{B_{11},I_9}t_{J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|0^I 1^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|J_0\rangle t_{B_{11},I_9}t_{J_2} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^J 0^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle t_{B_{11},I_9}t_{J_2} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|0^J 1^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_2|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle t_{B_{11},I_9}t_{J_2} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_9,J_3)\rangle = \\ &+ \tfrac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|0^I 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9|\hat{0}_{\alpha}^- |I_0\rangle \langle J_3 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |J_0\rangle t_{B_{11},I_9} t_{J_3} \\ &+ \tfrac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|0^I 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_3 |\hat{0}_{\beta}^+ \hat{1}_{\beta}^- |J_0\rangle t_{B_{11},I_9} t_{J_3} \\ &+ \tfrac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|0^I 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_3 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- |J_0\rangle t_{B_{11},I_9} t_{J_3} \\ &+ \tfrac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|0^I 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_3 |\hat{1}_{\beta}^+ \hat{0}_{\beta}^- |J_0\rangle t_{B_{11},I_9} t_{J_3} \\ &+ \tfrac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|1^J 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_3 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- |J_0\rangle t_{B_{11},I_9} t_{J_3} \\ &+ \tfrac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^J 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_3 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- |J_0\rangle t_{B_{11},I_9} t_{J_3} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_9,J_2)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|0^I 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |J_0\rangle t_{A_1,J_2} t_{B_{11},I_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^J |\hat{g}|0^I 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_2 |\hat{0}_{\beta}^+ \hat{1}_{\beta}^- |J_0\rangle t_{A_1,J_2} t_{B_{11},I_9} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\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 0^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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 0^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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 0^{A}0^{J}|\hat{g}|0^{J}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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 0^{A}0^{J}|\hat{g}|0^{J}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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 0^{A}0^{J}|\hat{g}|0^{J}1^{J}\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{1}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_9,J_3)\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,J_3}t_{B_{11},I_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|J_0\rangle t_{A_1,J_3}t_{B_{11},I_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_1,J_3}t_{B_{11},I_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle t_{A_1,J_3}t_{B_{11},I_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,J_3}t_{B_{11},I_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^J1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,J_3}t_{B_{11},I_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_{11},I_9}t_{J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_{1$$

$$\langle (A_9, B_{11}) | \hat{H} | (B_{11}, I_{10}, J_1) \rangle =$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^J | \hat{g} | 1^I 0^J \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_1 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | J_0 \rangle t_{B_{11}, I_{10}} t_{J_1}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{B_{11},I_{10}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},I_{10}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{11},I_{10}}t_{J_{1}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{J}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},I_{10}}t_{J_{1}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{J}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},I_{10}}t_{J_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_{10},J_1)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|1^I 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\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}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|1^I 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\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}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^J|\hat{g}|1^I 1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\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}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^J|\hat{g}|1^I 1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\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}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^J 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\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}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^J 1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\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}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^J|\hat{g}|1^I 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\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 0^A 0^J|\hat{g}|1^I 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\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 0^A 1^J|\hat{g}|1^I 1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\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 0^A 1^J|\hat{g}|1^I 1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\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 0^A 1^J|\hat{g}|0^J 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\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 0^A 1^J|\hat{g}|1^J 1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\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 0^A 1^J|\hat{g}|0^J 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\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}{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{10},J_{2})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},I_{10}}t_{J_{2}}\\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{11},I_{10}}t_{J_{2}}\\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},I_{10}}t_{J_{2}}\\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{B_{11},I_{10}}t_{J_{2}}\\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},I_{10}}t_{J_{2}}\\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{11},I_{10}}t_{J_{2}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_{10},J_3)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_0|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_0\rangle t_{B_{11},I_{10}}t_{J_3}\\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_0|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_0\rangle t_{B_{11},I_{10}}t_{J_3}\\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_0|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{B_{11},I_{10}}t_{J_3}\\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^J|\hat{g}|1^I1^J\rangle\langle A_0|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_0\rangle t_{B_{11},I_{10}}t_{J_3}\\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|1^J0^J\rangle\langle A_0|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_0\rangle t_{B_{11},I_{10}}t_{J_3}\\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^I|\hat{g}|0^J1^J\rangle\langle A_0|\hat{0}_{\alpha}^{+}|A_9\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_3|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{B_{11},I_{10}}t_{J_3} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},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_1 |\hat{0}_{\alpha}^+ |A_9 \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 0^A 0^J |\hat{g}| 1^I 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \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 0^A 0^J |\hat{g}| 1^I 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \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 0^A 0^J |\hat{g}| 1^I 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \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 0^A 0^J |\hat{g}| 1^J 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \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 0^A 0^J |\hat{g}| 1^J 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \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 0^A 0^J |\hat{g}| 1^I 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \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 0^A 0^J |\hat{g}| 1^I 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \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 0^A 0^J |\hat{g}| 1^I 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \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 0^A 0^J |\hat{g}| 1^I 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \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 0^A 0^J |\hat{g}| 1^I 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0 \rangle \langle J_2 |\hat{0}_{\beta}^+ \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 0^A 0^J |\hat{g}| 1^J 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0 \rangle$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{10},J_{3})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle \langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},J_{3}}t_{B_{11},I_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle \langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{1},J_{3}}t_{B_{11},I_{10}} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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 0^{A}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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 0^{A}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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 0^{A}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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 0^{A}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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 0^{A}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{1}|\hat{0}_{\alpha}^{+}|A_{1}|\hat{0}_{\alpha}^{-}|A_{1}|\hat{0}_{\alpha}^{-}|A_{1}|\hat{0}_{\alpha}^{-}|A_{1}|\hat{0}_{\alpha}^{-}|A_{1}|\hat{0}_{\alpha}^{-}|A_{1}|\hat{0}_{\alpha}^{-}|A_{1}|\hat{0}_{\alpha}^{-}|A_{1}|\hat{0}_{\alpha}^{-}|A_{1}|\hat{0}_{\alpha}^{-}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_9,J_1)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^J |\hat{g}|0^I 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_1 |\hat{0}^+_{\alpha} \hat{0}^-_{\alpha}|J_0 \rangle t_{A_2,J_1} t_{B_{11},I_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^J |\hat{g}|0^I 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_1 |\hat{0}^+_{\beta} \hat{0}^-_{\beta}|J_0 \rangle t_{A_2,J_1} t_{B_{11},I_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^J |\hat{g}|0^I 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_1 |\hat{1}^+_{\alpha} \hat{1}^-_{\alpha}|J_0 \rangle t_{A_2,J_1} t_{B_{11},I_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^J |\hat{g}|0^I 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_1 |\hat{1}^+_{\beta} \hat{1}^-_{\beta}|J_0 \rangle t_{A_2,J_1} t_{B_{11},I_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^J 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_1 |\hat{0}^+_{\alpha} \hat{0}^-_{\alpha}|J_0 \rangle t_{A_2,J_1} t_{B_{11},I_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^J 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_1 |\hat{0}^+_{\alpha} \hat{0}^-_{\alpha}|J_0 \rangle t_{A_2,J_1} t_{B_{11},I_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^J |\hat{g}|0^I 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_1 |\hat{0}^+_{\alpha} \hat{0}^-_{\alpha}|J_0 \rangle t_{A_2} t_{B_{11},I_9} t_{J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^J |\hat{g}|0^I 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_1 |\hat{0}^+_{\alpha} \hat{0}^-_{\alpha}|J_0 \rangle t_{A_2} t_{B_{11},I_9} t_{J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^J |\hat{g}|0^I 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_1 |\hat{1}^+_{\alpha} \hat{1}^-_{\alpha}|J_0 \rangle t_{A_2} t_{B_{11},I_9} t_{J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^J |\hat{g}|0^I 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_1 |\hat{1}^+_{\alpha} \hat{1}^-_{\alpha}|J_0 \rangle t_{A_2} t_{B_{11},I_9} t_{J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^J 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_1 |\hat{1}^+_{\alpha} \hat{1}^-_{\alpha}|J_0 \rangle t_{A_2} t_{B_{11},I_9} t_{J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^J 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle I_1 |\hat{1}^+_{\alpha} \hat{1}^-_{\alpha}|J_0 \rangle t_{A_2} t_{B_{11},I_9} t_{J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^J |\hat{g}|$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_9,J_1)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^J |\hat{g}| 0^I 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_1 |\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0 \rangle t_{A_3,J_1} t_{B_{11},I_9} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{3},J_{1}}t_{B_{11},I_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},J_{1}}t_{B_{11},I_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{3},J_{1}}t_{B_{11},I_{9}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},J_{1}}t_{B_{11},I_{9}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},J_{1}}t_{B_{11},I_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{J}|\hat{g}|0^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{J}|\hat{g}|0^{J}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_9,J_2)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,J_2}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|J_0\rangle t_{A_2,J_2}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_2,J_2}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle t_{A_2,J_2}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,J_2}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,J_2}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_2,L_2}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\beta}\hat{1}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_{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_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_{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_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle I_$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_9, J_3)\rangle =$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},J_{3}}t_{B_{11},I_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{2},J_{3}}t_{B_{11},I_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},J_{3}}t_{B_{11},I_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{2},J_{3}}t_{B_{11},I_{9}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},J_{3}}t_{B_{11},I_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},J_{3}}t_{B_{11},I_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{J}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|0^{J}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_9,J_2)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,J_2}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\beta}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,J_2}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,J_2}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle t_{A_3,J_2}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^J0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,J_2}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,J_2}t_{B_{11},I_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_{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_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|J_0\rangle t_{A_3}t_{B_{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_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|J_0\rangle t_{A_3}t_{B_{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_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle t_{A_3}t_{B_{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_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle t_{A_3}t_{B_{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_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle t_{A_3}t_{B_{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_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_{11},I_9}t_{J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^J1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_9,J_3)\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,J_3}t_{B_{11},I_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\beta}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,J_3}t_{B_{11},I_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,J_3}t_{B_{11},I_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle t_{A_3,J_3}t_{B_{11},I_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,J_3}t_{B_{11},I_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,J_3}t_{B_{11},I_9} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_{11},I_9}t_{J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_{11},I_9}t_{J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|J_0\rangle t_{A_3}t_{B_{11},I_9}t_{J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_{11},I_9}t_{J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle t_{A_3}t_{B_{11},I_9}t_{J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle t_{A_3}t_{B_{11},I_9}t_{J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_{11},I_9}t_{J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^J1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_{1$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},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_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},J_{1}}t_{B_{11},I_{10}}}{+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{2},J_{1}}t_{B_{11},I_{10}}}\\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},J_{1}}t_{B_{11},I_{10}}}{+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{2},J_{1}}t_{B_{11},I_{10}}}\\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{J}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},J_{1}}t_{B_{11},I_{10}}}\\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},J_{1}}t_{B_{11},I_{10}}}\\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{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_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{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_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{1}}\\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{J}|\hat{g}|0^{J}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{1}}\\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{J}|\hat{g}|0^{J}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{1}}\\ &+ \frac{1}{4}\sum$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},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_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},J_{1}}t_{B_{11},I_{10}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{3},J_{1}}t_{B_{11},I_{10}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},J_{1}}t_{B_{11},I_{10}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{3},J_{1}}t_{B_{11},I_{10}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{J}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},J_{1}}t_{B_{11},I_{10}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},J_{1}}t_{B_{11},I_{10}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{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_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{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_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{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_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{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_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{1}} \\ &+\frac{1}{4}\sum_{I$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{10},J_2)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2,J_2}t_{B_{11},I_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_2,J_2}t_{B_{11},I_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_2,J_2}t_{B_{11},I_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_2,J_2}t_{B_{11},I_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^J0^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2,J_2}t_{B_{11},I_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2,J_2}t_{B_{11},I_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_{11},I_{10}}t_{J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_{11},I_{10}}t_{J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{0}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_{11},I_{10}}t_{J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_{11},I_{10}}t_{J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_{11},I_{10}}t_{J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_{11},I_{10}}t_{J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_{11},I_{10}}t_{J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_2|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_2}t_{B_{11},I_{10}}t_$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},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_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2,J_3}t_{B_{11},I_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\beta\hat{1}^-_\beta|J_0\rangle t_{A_2,J_3}t_{B_{11},I_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\alpha\hat{0}^-_\alpha|J_0\rangle t_{A_2,J_3}t_{B_{11},I_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{1}^+_\beta\hat{0}^-_\beta|J_0\rangle t_{A_2,J_3}t_{B_{11},I_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|1^J 0^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2,J_3}t_{B_{11},I_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 1^I|\hat{g}|0^J 1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2,J_3}t_{B_{11},I_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A 0^J|\hat{g}|1^I 1^J\rangle\langle A_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_{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_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_{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_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_{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_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_{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_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_{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_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_{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_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle t_{A_2}t_{B_{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_2|\hat{1}^+_\alpha|A_9\rangle\langle I_{10}|\hat{1}^-_\alpha|I_0\rangle\langle J_3|\hat{0}^+_\alpha\hat{1}^-_\alpha|J_0\rangle$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{10},J_2)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,J_2}t_{B_{11},I_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|J_0\rangle t_{A_3,J_2}t_{B_{11},I_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,J_2}t_{B_{11},I_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle t_{A_3,J_2}t_{B_{11},I_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^J0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,J_2}t_{B_{11},I_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^J1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,J_2}t_{B_{11},I_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_{11},I_{10}}t_{J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|J_0\rangle t_{A_3}t_{B_{11},I_{10}}t_{J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^J|\hat{g}|1^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle t_{A_3}t_{B_{11},I_{10}}t_{J_2} \\ &+ \frac{1}{4}\sum_{J}\sum_{J}\langle 1^A0^J|\hat{g$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A} 1^{I} | \hat{g} | 0^{J} 1^{J} \rangle \langle A_{3} | \hat{1}^{+}_{\alpha} | A_{9} \rangle \langle I_{10} | \hat{1}^{-}_{\alpha} | I_{0} \rangle \langle J_{2} | \hat{1}^{+}_{\alpha} \hat{0}^{-}_{\alpha} | J_{0} \rangle t_{A_{3}} t_{B_{11}, I_{10}} t_{J_{2}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},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_3 |\hat{1}^+_{\alpha} | A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha} | I_0 \rangle \langle J_3 |\hat{0}^+_{\alpha} \hat{1}^-_{\alpha} | J_0 \rangle t_{A_3,J_3} t_{B_{11},I_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^J |\hat{g}| 1^I 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha} | A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha} | I_0 \rangle \langle J_3 |\hat{0}^+_{\beta} \hat{1}^-_{\beta} | J_0 \rangle t_{A_3,J_3} t_{B_{11},I_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^J |\hat{g}| 1^I 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha} | A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha} | I_0 \rangle \langle J_3 |\hat{1}^+_{\alpha} \hat{0}^-_{\alpha} | J_0 \rangle t_{A_3,J_3} t_{B_{11},I_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^J |\hat{g}| 1^I 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha} | A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha} | I_0 \rangle \langle J_3 |\hat{1}^+_{\beta} \hat{0}^-_{\beta} | J_0 \rangle t_{A_3,J_3} t_{B_{11},I_{10}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 1^J 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha} | A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha} | I_0 \rangle \langle J_3 |\hat{0}^+_{\alpha} \hat{1}^-_{\alpha} | J_0 \rangle t_{A_3,J_3} t_{B_{11},I_{10}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 0^J 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha} | A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha} | I_0 \rangle \langle J_3 |\hat{0}^+_{\alpha} \hat{1}^-_{\alpha} | J_0 \rangle t_{A_3,J_3} t_{B_{11},I_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^J |\hat{g}| 1^I 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha} | A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha} | I_0 \rangle \langle J_3 |\hat{0}^+_{\alpha} \hat{1}^-_{\alpha} | J_0 \rangle t_{A_3} t_{B_{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_3 |\hat{1}^+_{\alpha} | A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha} | I_0 \rangle \langle J_3 |\hat{0}^+_{\beta} \hat{1}^-_{\beta} | J_0 \rangle t_{A_3} t_{B_{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_3 |\hat{1}^+_{\alpha} | A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha} | I_0 \rangle \langle J_3 |\hat{1}^+_{\beta} \hat{0}^-_{\beta} | J_0 \rangle t_{A_3} t_{B_{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_3 |\hat{1}^+_{\alpha} | A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha} | I_0 \rangle \langle J_3 |\hat{1}^+_{\beta} \hat{0}^-_{\beta} | J_0 \rangle t_{A_3} t_{B_{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_3 |\hat{1}^+_{\alpha} | A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha} | I_0 \rangle \langle J_3 |\hat{0}^+_{\alpha} \hat{1}^-_{\alpha} | J_0 \rangle t_{A_3} t_{B_{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_3 |\hat{1}^+_{\alpha}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{10},B_{11},I_{12},J_{9})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{A}0^{J}\rangle\langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{10},B_{11}}t_{I_{12},J_{9}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{A}0^{J}\rangle\langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{10},I_{12}}t_{B_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{10},B_{11},I_{12},J_{10})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{I}|\hat{g}|1^{A}1^{J}\rangle \langle A_{10}|\hat{1}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_{9}\rangle \langle I_{12}|\hat{0}^{+}_{\alpha}|I_{0}\rangle \langle J_{10}|\hat{1}^{-}_{\alpha}|J_{0}\rangle t_{A_{10},B_{11}}t_{I_{12},J_{10}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{I}|\hat{g}|1^{A}1^{J}\rangle \langle A_{10}|\hat{1}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_{9}\rangle \langle I_{12}|\hat{0}^{+}_{\alpha}|I_{0}\rangle \langle J_{10}|\hat{1}^{-}_{\alpha}|J_{0}\rangle t_{A_{10},I_{12}}t_{B_{11},J_{10}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_{10}, B_{11}, I_{11}, J_9)\rangle =$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{A}0^{J}\rangle\langle A_{10}|\hat{1}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_{9}\rangle\langle I_{11}|\hat{1}^{+}_{\alpha}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle t_{A_{10},B_{11}}t_{I_{11},J_{9}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{A}0^{J}\rangle\langle A_{10}|\hat{1}^{+}_{\beta}\hat{0}^{-}_{\beta}|A_{9}\rangle\langle I_{11}|\hat{1}^{+}_{\alpha}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle t_{A_{10},I_{11}}t_{B_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{10},B_{11},I_{11},J_{10})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A} 1^{I}|\hat{g}|1^{A} 1^{J}\rangle \langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{10},B_{11}}t_{I_{11},J_{10}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A} 1^{I}|\hat{g}|1^{A} 1^{J}\rangle \langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{10},I_{11}}t_{B_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_{11},I_4,J_9)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 1^I 0^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle I_4 |\hat{0}^+_{\alpha} \hat{1}^-_{\beta}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_5,I_4} t_{B_{11},J_9} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 0^I 0^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle I_4 |\hat{1}^+_{\alpha} \hat{0}^-_{\beta}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_5,I_4} t_{B_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_{11},I_4,J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|1^I 1^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle I_4 |\hat{0}^+_{\alpha}\hat{1}^-_{\beta}|I_0 \rangle \langle J_{10}|\hat{1}^-_{\alpha}|J_0 \rangle t_{A_5,I_4} t_{B_{11},J_{10}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^I 1^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle I_4 |\hat{1}^+_{\alpha}\hat{0}^-_{\beta}|I_0 \rangle \langle J_{10}|\hat{1}^-_{\alpha}|J_0 \rangle t_{A_5,I_4} t_{B_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_6,B_{11},I_{15},J_9)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^I 0^J \rangle \langle A_6 |\hat{0}_{\beta}^- |A_9 \rangle \langle I_{15} |\hat{0}_{\alpha}^+ \hat{0}_{\beta}^+ |I_0 \rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0 \rangle t_{A_6,I_{15}} t_{B_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|1^I 0^J \rangle \langle A_6 |\hat{0}_{\beta}^- |A_9 \rangle \langle I_{15} |\hat{1}_{\alpha}^+ \hat{1}_{\beta}^+ |I_0 \rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0 \rangle t_{A_6,I_{15}} t_{B_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{6},B_{11},I_{15},J_{10})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{I}1^{J}\rangle\langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{15}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{6},I_{15}}t_{B_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{I}1^{J}\rangle\langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{15}|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{6},I_{15}}t_{B_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{10},B_{11},I_{9},J_{12})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{I}|\hat{g}|1^{A}0^{J}\rangle \langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{10},B_{11}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{I}|\hat{g}|1^{A}0^{J}\rangle \langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{10},J_{12}}t_{B_{11},I_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_{11},I_{10},J_{12})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|1^A 0^J \rangle \langle A_{10}|\hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_{10}|\hat{1}^-_{\alpha} |I_0\rangle \langle J_{12}|\hat{0}^+_{\alpha} |J_0\rangle t_{A_{10},B_{11}} t_{I_{10},J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|1^A 0^J \rangle \langle A_{10}|\hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle I_{10}|\hat{1}^-_{\alpha} |I_0\rangle \langle J_{12}|\hat{0}^+_{\alpha} |J_0\rangle t_{A_{10},J_{12}} t_{B_{11},I_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{10},B_{11},I_{9},J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{A}1^{J}\rangle\langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{10},B_{11}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{A}1^{J}\rangle\langle A_{10}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{10},J_{11}}t_{B_{11},I_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_{11},I_{10},J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 1^J\rangle\langle A_{10}|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|A_9\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_{10},B_{11}}t_{I_{10},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^A 1^J\rangle\langle A_{10}|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|A_9\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_{10},J_{11}}t_{B_{11},I_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_{11},I_9,J_4)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|1^J 0^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_4 |\hat{0}^+_{\alpha}\hat{1}^-_{\beta}|J_0 \rangle t_{A_5,J_4} t_{B_{11},I_9} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^J 1^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_4 |\hat{1}^+_{\alpha}\hat{0}^-_{\beta}|J_0 \rangle t_{A_5,J_4} t_{B_{11},I_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_{11},I_{10},J_4)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|1^J 0^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_4 |\hat{0}^+_{\alpha}\hat{1}^-_{\beta}|J_0 \rangle t_{A_5,J_4} t_{B_{11},I_{10}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^J 1^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_4 |\hat{1}^+_{\alpha}\hat{0}^-_{\beta}|J_0 \rangle t_{A_5,J_4} t_{B_{11},I_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{6},B_{11},I_{9},J_{15})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{15}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{6},J_{15}}t_{B_{11},I_{9}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{J}\rangle\langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{15}|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{6},J_{15}}t_{B_{11},I_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_6,B_{11},I_{10},J_{15})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^J 0^J \rangle \langle A_6 |\hat{0}^-_{\beta}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_{15}|\hat{0}^+_{\alpha}\hat{0}^+_{\beta}|J_0 \rangle t_{A_6,J_{15}} t_{B_{11},I_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|1^J 1^J \rangle \langle A_6 |\hat{0}^-_{\beta}|A_9 \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_{15}|\hat{1}^+_{\alpha}\hat{1}^+_{\beta}|J_0 \rangle t_{A_6,J_{15}} t_{B_{11},I_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{14},J_{7})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{14},J_{7}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{I}0^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{14},J_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{14},J_{8})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{14},J_{8}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{I}1^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{14},J_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{13},J_{7})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|1^{B}0^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{13},J_{7}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{I}0^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{13},J_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{13},J_{8})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{13},J_{8}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{I}1^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{13},J_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{7},J_{14})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{B}0^{I}|\hat{g}|1^{B}0^{J}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{7},J_{14}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{B}1^{B}|\hat{g}|0^{J}0^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{7},J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{8},J_{14})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{B}1^{I}|\hat{g}|1^{B}0^{J}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{8},J_{14}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{B}1^{B}|\hat{g}|0^{J}1^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{8},J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{7},J_{13})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{B}0^{I}|\hat{g}|1^{B}1^{J}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{7},J_{13}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{B}1^{B}|\hat{g}|1^{J}0^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{7},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{8},J_{13})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{B}1^{I}|\hat{g}|1^{B}1^{J}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{8},J_{13}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{B}1^{B}|\hat{g}|1^{J}1^{I}\rangle \langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{8},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{14},I_{12},J_7)\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 0^B 1^B |\hat{g}|0^I 0^J \rangle \langle B_{14}|\hat{1}^+_\beta \hat{0}^-_\alpha |B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha |I_0\rangle \langle J_7|\hat{0}^-_\beta |J_0\rangle t_{A_9,I_{12}} t_{B_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{14},I_{12},J_8)\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 0^B 1^B |\hat{g}|0^I 1^J \rangle \langle B_{14}|\hat{1}^+_\beta \hat{0}^-_\alpha |B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha |I_0\rangle \langle J_8|\hat{1}^-_\beta |J_0\rangle t_{A_9,I_{12}} t_{B_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{13},I_{12},J_7)\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 1^B 1^B |\hat{g}|0^I 0^J \rangle \langle B_{13}|\hat{1}^+_\beta \hat{1}^-_\alpha |B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha |I_0\rangle \langle J_7|\hat{0}^-_\beta |J_0\rangle t_{A_9,I_{12}} t_{B_{13},J_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{13}, I_{12}, J_8)\rangle =$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 1^B |\hat{g}|0^I 1^J \rangle \langle B_{13}|\hat{1}^+_{\beta} \hat{1}^-_{\alpha} |B_{11}\rangle \langle I_{12}|\hat{0}^+_{\alpha} |I_0\rangle \langle J_8|\hat{1}^-_{\beta} |J_0\rangle t_{A_9, I_{12}} t_{B_{13}, J_8}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{14}, I_{11}, J_7)\rangle =$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 1^B |\hat{g}|1^I 0^J \rangle \langle B_{14}|\hat{1}^+_{\beta} \hat{0}^-_{\alpha} |B_{11}\rangle \langle I_{11}|\hat{1}^+_{\alpha} |I_0\rangle \langle J_7|\hat{0}^-_{\beta} |J_0\rangle t_{A_9, I_{11}} t_{B_{14}, J_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{14},I_{11},J_8)\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 0^B 1^B |\hat{g}| 1^I 1^J \rangle \langle B_{14}| \hat{1}^+_\beta \hat{0}^-_\alpha |B_{11}\rangle \langle I_{11}| \hat{1}^+_\alpha |I_0\rangle \langle J_8| \hat{1}^-_\beta |J_0\rangle t_{A_9,I_{11}} t_{B_{14},J_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{13}, I_{11}, J_7)\rangle =$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 1^B |\hat{g}| 1^I 0^J \rangle \langle B_{13}| \hat{1}_{\beta}^+ \hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{11}| \hat{1}_{\alpha}^+ |I_0\rangle \langle J_7| \hat{0}_{\beta}^- |J_0\rangle t_{A_9, I_{11}} t_{B_{13}, J_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{13},I_{11},J_8)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 1^B |\hat{g}|1^I 1^J \rangle \langle B_{13}|\hat{1}^+_{\beta}\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle \langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_9,I_{11}} t_{B_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{12},J_{9})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{12},J_{9}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{12},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{12},J_{10})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{12},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{12},I_{11},J_9)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 1^I |\hat{g}| 1^B 0^J \rangle \langle B_{12}|\hat{1}^+_{\beta} \hat{0}^-_{\beta} |B_{11}\rangle \langle I_{11}|\hat{1}^+_{\alpha} |I_0\rangle \langle J_9|\hat{0}^-_{\alpha} |J_0\rangle t_{A_9,B_{12}} t_{I_{11},J_9} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 1^I |\hat{g}| 1^B 0^J \rangle \langle B_{12}|\hat{1}^+_{\beta} \hat{0}^-_{\beta} |B_{11}\rangle \langle I_{11}|\hat{1}^+_{\alpha} |I_0\rangle \langle J_9|\hat{0}^-_{\alpha} |J_0\rangle t_{A_9,I_{11}} t_{B_{12},J_9} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{11},J_{10})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{15},I_{12},J_{6})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{6}|\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{15},J_{6}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{J}\rangle\langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{6}|\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{15},J_{6}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{15},I_{11},J_{6})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{J}\rangle\langle B_{15}|\hat{1}^{+}_{\beta}|B_{11}\rangle\langle I_{11}|\hat{1}^{+}_{\alpha}|I_{0}\rangle\langle J_{6}|\hat{0}^{-}_{\beta}\hat{0}^{-}_{\alpha}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{15},J_{6}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}1^{J}\rangle\langle B_{15}|\hat{1}^{+}_{\beta}|B_{11}\rangle\langle I_{11}|\hat{1}^{+}_{\alpha}|I_{0}\rangle\langle J_{6}|\hat{1}^{-}_{\beta}\hat{1}^{-}_{\alpha}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{15},J_{6}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_8,I_{12},J_{14})\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 0^B |\hat{g}|0^I 0^J \rangle \langle B_8 |\hat{0}^-_\beta \hat{0}^-_\alpha |B_{11}\rangle \langle I_{12} |\hat{0}^+_\alpha |I_0\rangle \langle J_{14} |\hat{0}^+_\beta |J_0\rangle t_{A_9,I_{12}} t_{B_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_9,I_{12},J_{12})\rangle = \\ &+ \frac{-1}{8}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^I 0^J\rangle\langle B_9|\hat{1}_\alpha^-\hat{0}_\alpha^-|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^J 0^I\rangle\langle B_9|\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^J 0^I\rangle\langle B_9|\hat{1}_\alpha^-\hat{0}_\alpha^-|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^I 0^J\rangle\langle B_9|\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\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,I_{12}} \\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^J 0^J\rangle\langle B_9|\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^J 0^I\rangle\langle B_9|\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^J 0^I\rangle\langle B_9|\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^J 0^I\rangle\langle B_9|\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^J 0^I\rangle\langle B_9|\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^J 0^I\rangle\langle B_9|\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^J 0^J\rangle\langle B_9|\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|0^J 0^J\rangle\langle B_9|\hat{0}_\alpha^-\hat{1}_\alpha^-|B_{11}\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle I_{12}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_7, I_{12}, J_{14})\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 1^B |\hat{g}|0^J 0^I \rangle \langle B_7 |\hat{0}^-_{\beta} \hat{1}^-_{\alpha} |B_{11}\rangle \langle I_{12} |\hat{0}^+_{\alpha} |I_0\rangle \langle J_{14} |\hat{0}^+_{\beta} |J_0\rangle t_{A_9, I_{12}} t_{B_7, J_{14}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_8, I_{12}, J_{13})\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 0^B |\hat{g}|0^I 1^J \rangle \langle B_8 |\hat{0}_{\beta}^- \hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle t_{A_9, I_{12}} t_{B_8, J_{13}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{9},I_{12},J_{11})\rangle = \\ &+ \frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{I}1^{J}\rangle\langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\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}} \\ &+ \frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{J}0^{I}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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}} \\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{J}0^{I}\rangle\langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\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}} \\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{I}1^{J}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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},I_{12}} \\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{I}1^{J}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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}} \\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{J}0^{I}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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}} \\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{J}0^{I}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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}} \\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{J}0^{I}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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}} \\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{I}1^{J}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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}} \\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{I}1^{J}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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}} \\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{I}1^{J}0^{I}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_7, I_{12}, J_{13})\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 1^B |\hat{g}| 1^J 0^I \rangle \langle B_7 |\hat{0}_{\beta}^- \hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle t_{A_9, I_{12}} t_{B_7, J_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_8,I_{11},J_{14})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 0^B |\hat{g}| 1^I 0^J \rangle \langle B_8 |\hat{0}^-_{\beta} \hat{0}^-_{\alpha} |B_{11}\rangle \langle I_{11}| \hat{1}^+_{\alpha} |I_0\rangle \langle J_{14} |\hat{0}^+_{\beta} |J_0\rangle t_{A_9,I_{11}} t_{B_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{9},I_{11},J_{12})\rangle = \\ &+ \frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{I}0^{J}\rangle\langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{J}1^{I}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{J}1^{I}\rangle\langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{I}0^{J}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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},I_{11}}\\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{J}1^{I}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{J}1^{I}\rangle\langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{J}1^{I}\rangle\langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{J}1^{I}\rangle\langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{J}1^{I}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{J}1^{I}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|0^{J}1^{I}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_7,I_{11},J_{14})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 1^B |\hat{g}|0^J 1^I \rangle \langle B_7 |\hat{0}^-_{\beta} \hat{1}^-_{\alpha} |B_{11}\rangle \langle I_{11}|\hat{1}^+_{\alpha} |I_0\rangle \langle J_{14}|\hat{0}^+_{\beta} |J_0\rangle t_{A_9,I_{11}} t_{B_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_8,I_{11},J_{13})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{I} \langle 0^B 0^B |\hat{g}| 1^I 1^J \rangle \langle B_8 |\hat{0}^-_{\beta} \hat{0}^-_{\alpha} |B_{11}\rangle \langle I_{11}| \hat{1}^+_{\alpha} |I_0\rangle \langle J_{13}| \hat{1}^+_{\beta} |J_0\rangle t_{A_9,I_{11}} t_{B_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{9},I_{11},J_{11})\rangle = \\ &+ \frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{I}1^{J}\rangle\langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\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}}\\ &+ \frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{J}1^{I}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{J}1^{I}\rangle\langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\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}}\\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{I}1^{J}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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},I_{11}}\\ &+ \frac{1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{J}1^{J}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+ \frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{J}1^{I}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+ \frac{-1}{8}\sum_{I}\sum_{J}\langle 0^{B}1^{B}|\hat{g}|1^{J}1^{J}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_7, I_{11}, J_{13})\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 1^B |\hat{g}| 1^J 1^I \rangle \langle B_7 |\hat{0}_{\beta}^- \hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{11}| \hat{1}_{\alpha}^+ |I_0\rangle \langle J_{13}| \hat{1}_{\beta}^+ |J_0\rangle t_{A_9, I_{11}} t_{B_7, J_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_1,J_{12})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^I0^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_1} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^I0^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^J1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^J1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_1|\hat{0}^+_{\beta}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{A_9,J_{12}}t_{B_2,I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_1|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_1|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_1|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^J1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_1|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^J1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_1|\hat{0}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_1,J_{12})\rangle = \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^I0^J\rangle\langle B_3|\hat{0}_\alpha^-|B_{11}\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_3,I_1} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^I0^J\rangle\langle B_3|\hat{0}_\alpha^-|B_{11}\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_3,I_1} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^I\rangle\langle B_3|\hat{0}_\alpha^-|B_{11}\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_3,I_1} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^J1^I\rangle\langle B_3|\hat{0}_\alpha^-|B_{11}\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_3,I_1} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^I\rangle\langle B_3|\hat{0}_\alpha^-|B_{11}\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_3,I_1} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^J1^I\rangle\langle B_3|\hat{0}_\alpha^-|B_{11}\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_3}t_{A_9,J_{12}}t_{B_3,I_1} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_3|\hat{0}_\alpha^-|B_{11}\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_3}t_{A_9,J_{12}}t_{I_1} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_3|\hat{0}_\alpha^-|B_{11}\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_3}t_{A_9,J_{12}}t_{I_1} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^I\rangle\langle B_3|\hat{0}_\alpha^-|B_{11}\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_3}t_{A_9,J_{12}}t_{I_1} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_3|\hat{0}_\alpha^-|B_{11}\rangle\langle I_1|\hat{0}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_3}t_{A_9,J_{12}}t_{I_1} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^I\rangle\langle B_3|\hat{0}_\alpha^-|B_{11}\rangle\langle I_1|\hat{0}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{B_3}t_{A_9,J_{12}}t_{I_1} \\$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_2,J_{12})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_2} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\beta}|I_0\rangle\langle I_12|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_3,J_{12})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_3} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_3|\hat{0}^+_{\beta}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_3|\hat{0}^+_{\beta}\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_3|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0\rangle\langle I_12|\hat{0}^+_{\alpha}|J_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_3} \\ &+ \frac{1}{4}\sum$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_2,J_{12})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^I 0^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_2} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_9,J_{12}}t_{B_3,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^I 0^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle I_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{J}1^{I}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{2}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_3,J_{12})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 1^I |\hat{g}|0^I 0^J \rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\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_3,I_3} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|1^I 0^J \rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\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_3,I_3} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|0^J 1^I \rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\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_3,I_3} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|0^J 1^I \rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\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_3,I_3} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|0^J 1^I \rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\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_3,I_3} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|0^J 1^I \rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\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_3,I_3} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|0^J 1^I \rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_3|\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0\rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0\rangle t_{B_3} t_{A_9,J_{12}} t_{I_3} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|0^J 1^I \rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_3|\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0\rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0\rangle t_{B_3} t_{A_9,J_{12}} t_{I_3} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|0^J 1^I \rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_3|\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0\rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0\rangle t_{B_3} t_{A_9,J_{12}} t_{I_3} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|0^J 1^I \rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_3|\hat{0}_{\alpha}^+ \hat{1}_{\beta}^- |I_0\rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0\rangle t_{B_3} t_{A_9,J_{12}} t_{I_3} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|0^J 1^I \rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_3|\hat{0}_{\beta}^+ \hat{1}_{\beta}^- |I_0\rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0\rangle t_{B_3} t_{A_9,J_{12}} t_{I_3} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|0^J 1^I \rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_3|\hat{0}_{\beta}^+ \hat{1}_{\beta}^- |I_0\rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0\rangle t_{B_3} t_{A_9,J_{12}} t_{I_3} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_1,J_{12})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^I0^J\rangle\langle B_0|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_1|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle t_{A_9,J_{12}}t_{I_1} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^I0^J\rangle\langle B_0|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_1|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle t_{A_9,J_{12}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_0|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_1|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle t_{A_9,J_{12}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_0|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_1|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle t_{A_9,J_{12}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J0^I\rangle\langle B_0|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_1|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle t_{A_9,J_{12}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|0^J1^I\rangle\langle B_0|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_1|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle t_{A_9,J_{12}}t_{I_1} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_1, I_1, J_{12})\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I |\hat{g}|0^I 0^J \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_1 |\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle \langle J_{12} |\hat{0}^+_{\alpha}|J_0\rangle t_{A_9, J_{12}} t_{B_1, I_1}$$

$$\begin{split} &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{I}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|0^{J}0^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}1^{I}|\hat{g}|0^{J}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|0^{J}0^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}1^{I}|\hat{g}|0^{J}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}1^{I}|\hat{g}|0^{J}0^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}1^{I}|\hat{g}|0^{J}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|0^{J}0^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|0^{J}0^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|0^{J}0^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|0^{J}0^{I}\rangle\langle B_{1}|\hat{0}_{\alpha}^{-}|I_{0}\rangle$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_2,J_{12})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{I}\langle 1^B1^I|\hat{g}|0^I0^J\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{-1}{4}\sum_{I}\sum_{I}\langle 1^B0^I|\hat{g}|1^I0^J\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle\langle I_2|\hat{1}_\alpha^+\hat{0}_\alpha^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_0|\hat{1}_\alpha^-|B_{11}\rangle\langle I_2|\hat{1}_\beta^+\hat{0}_\beta^-|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle t_{A_9,J_{12}}t_{I_2} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_3,J_{12})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|0^I0^J\rangle\langle B_0|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_9,J_{12}}t_{I_3} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^I0^J\rangle\langle B_0|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_9,J_{12}}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_0|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_9,J_{12}}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_0|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_9,J_{12}}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_0|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_3|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_9,J_{12}}t_{I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_0|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_3|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_9,J_{12}}t_{I_3} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_2,J_{12})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|0^I0^J\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^I0^J\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^J1^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0$$

$$\begin{split} &\langle (A_9,B_{11})| \hat{H} | (A_9,B_1,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_1 | \hat{1}^-_{\alpha} | B_{11} \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} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I | \hat{g} | 1^I 0^J \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I | \hat{g} | 0^J 1^I \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I | \hat{g} | 0^J 1^I \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I | \hat{g} | 0^J 1^I \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I | \hat{g} | 0^J 1^I \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I | \hat{g} | 0^J 1^I \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I | \hat{g} | 0^J 1^I \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I | \hat{g} | 0^J 1^I \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I | \hat{g} | 0^J 1^I \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I | \hat{g} | 0^J 1^I \rangle \langle B_1 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{0}^+_{\beta} \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} \end{split}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{B} 0^{I} | \hat{g} | 0^{J} 1^{I} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{3} | \hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle t_{B_{1}} t_{A_{9},J_{12}} t_{I_{3}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_1,J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,I_1} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J0^I\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^J1^I\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J0^I\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^J1^I\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_1|\hat{0}_{\beta}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_9,J_{11}}t_{B_2,I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J0^I\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J0^I\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^I\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^J1^I\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^J1^I\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_1,J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^I1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_1} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^I1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J0^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^J1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J0^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^J1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_1|\hat{0}_{\beta}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_9,J_{11}}t_{B_3,I_1} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^I1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{11}}t_{I_1} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J0^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{11}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J0^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{11}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J0^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{11}}t_{I_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^J1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{11}}t_{I_1} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_2,J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\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_2,I_2} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\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_2,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\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_2,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\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_2,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\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_2,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\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_2,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\alpha^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\rangle\langle I_2|\hat{0}_\alpha^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\rangle\langle I_2|\hat{0}_\beta^+\hat{1}_\beta^-|I_0\rangle\langle J_{11}|\hat{1}_\alpha^+|J_0$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_3,J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,I_3} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,I_3} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|0^I 1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_3} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_3} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_3} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_3} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_3} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{2}}t_{A_{9},J_{11}}t_{I_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{2}}t_{A_{9},J_{11}}t_{I_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{2}}t_{A_{9},J_{11}}t_{I_{3}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_2,J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_2} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_9,J_{11}}t_{B_3,I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{11}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{11}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{11}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{11}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{11}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{11}}t_{I_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_2|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{B_3}t_{A_9,J_{11}}t_{I_2} \\ &+ \frac{1}{4$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_3,J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 1^I|\hat{g}|0^I 1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_3} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^I 1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_3|\hat{0}_{\beta}^+\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_9,J_{11}}t_{B_3,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^I\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\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_3,I_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 0^I|\hat{g}|1^J 1^J\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_3|\hat{0}_{\alpha}^+|I_0\rangle\langle I_1|\hat{0}_{\alpha}^-|I_0\rangle\langle I_1|\hat{0}_{\alpha}^-|I_0\rangle\langle I_1|\hat{0}_{\alpha}^-|I_0\rangle\langle I_1|$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{3}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{1},J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|0^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{1}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}0^{I}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_1,J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^I1^J\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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 1^B1^I|\hat{g}|1^I1^J\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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 1^B0^I|\hat{g}|1^J0^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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 1^B1^I|\hat{g}|1^J1^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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 1^B0^I|\hat{g}|1^J0^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|1^J1^J\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|0^I1^J\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^J0^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^J0^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_1|\hat{0}^+_{\alpha}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\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} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_1|\hat{1}^-_{\alpha}|B_1|\hat{1}^-_{\alpha}|B_1|\hat{1}^-_{\alpha}|I_1|\hat{1}^+_{\alpha}|I_0\rangle\langle I_1|\hat{1}^+_{\alpha}|I_0\rangle\langle I_1|\hat{1}^+_{\alpha}|I_0\rangle\langle I_1|I_1|I_1|I_1|I_1|I_1|I_1|I_1|I$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{2},J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{2}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{2}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{2}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{2}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{2}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{2}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{3},J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{3}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{3}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{3}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{3}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{3}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{I_{3}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{2},J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\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 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\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 1^{B}0^{I}|\hat{g}|0^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|1^{J}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{I}|\hat{g}|1^{J}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{I}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{2}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_3,J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^B1^I|\hat{g}|0^I1^J\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\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 1^B0^I|\hat{g}|1^I1^J\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\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 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\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 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\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 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\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 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\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 1^B0^I|\hat{g}|1^J1^J\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\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 1^B0^I|\hat{g}|1^J1^J\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\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 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\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 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\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 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\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 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\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 1^B0^I|\hat{g}|1^J1^I\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\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 1^B0^I|\hat{g}|1$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{12},J_1)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,J_1} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,J_1} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\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_2,J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_1|\hat{0}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle t_{B_2}t_{A_9,I_{12}}t_{J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_1|\hat{0}_{\beta}^+\hat{0}_{\beta}^-|J_0\rangle t_{B_2}t_{A_9,I_{12}}t_{J_1} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{1}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{1}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{12},J_1)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\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_3,J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\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_3,J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\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_3,J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\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_3,J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\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_3,J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J1^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\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_3,J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_1|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{B_3}t_{A_9,I_{12}}t_{J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I0^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_1|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{B_3}t_{A_9,I_{12}}t_{J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_1|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_0\rangle t_{B_3}t_{A_9,I_{12}}t_{J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B1^J|\hat{g}|0^I1^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_1|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{B_3}t_{A_9,I_{12}}t_{J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_1|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{B_3}t_{A_9,I_{12}}t_{J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_1|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_0\rangle t_{B_3}t_{A_9,I_{12}}t_{J_1} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J0^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{12},J_2)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\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_2,J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\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_2,J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\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_2,J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\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_2,J_2} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\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_2,J_2} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\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_2,J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\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_2,J_2} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\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_2,J_2} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{2}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{2}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{2}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{12},J_3)\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\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_2,J_3} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{B_2}t_{A_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_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{B_2}t_{A_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_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{B_2}t_{A_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_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{B_2}t_{A_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_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{B_2}t_{A_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_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{B_2}t_{A_9,I_{12}}t_{J_3} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{B_2}t_{A_9,I_{12}}t_{J_3} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_2|\hat{0}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{12},J_{2})\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{3},J_{2}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{3},J_{2}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{3},J_{2}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{3},J_{2}} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{3},J_{2}} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{3},J_{2}} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{2}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{2}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{2}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{2}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{12},J_3)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\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_3,J_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\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_3,J_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\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_3,J_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\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_3,J_3} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0^J1^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\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_3,J_3} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|1^J0^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\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_3,J_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|0^I1^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{B_3}t_{A_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_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{B_3}t_{A_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_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{B_3}t_{A_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_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_3|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{B_3}t_{A_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_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{B_3}t_{A_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_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{B_3}t_{A_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_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_3|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{B_3}t_{A_9,I_{12}}t_{J_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^I|\hat{g}|0$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{12},J_{1})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{J_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|0^{I}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{J_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{J_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{J_{1}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|0^{J}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{J_{1}} \end{split}$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{B} 0^{I} | \hat{g} | 1^{J} 1^{J} \rangle \langle B_{0} | \hat{1}^{-}_{\alpha} | B_{11} \rangle \langle I_{12} | \hat{0}^{+}_{\alpha} | I_{0} \rangle \langle J_{1} | \hat{1}^{+}_{\alpha} \hat{1}^{-}_{\alpha} | J_{0} \rangle t_{A_{9},I_{12}} t_{J_{1}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{12},J_1)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}| 0^I 0^J \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \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 1^B 0^J |\hat{g}| 0^I 0^J \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \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 1^B 1^J |\hat{g}| 0^I 1^J \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \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 1^B 1^J |\hat{g}| 0^I 1^J \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \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 1^B 0^I |\hat{g}| 0^J 0^J \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \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 1^B 0^I |\hat{g}| 0^J 0^J \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \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 1^B 0^J |\hat{g}| 0^I 0^J \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \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 1^B 0^J |\hat{g}| 0^I 0^J \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \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 1^B 1^J |\hat{g}| 0^I 1^J \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \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 1^B 0^I |\hat{g}| 0^J 0^J \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \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 1^B 0^I |\hat{g}| 0^J 0^J \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \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 1^B 0^I |\hat{g}| 0^J 0^J \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_{12} |\hat{0}_{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{12},J_2)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}|0^I 1^J \rangle \langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle \langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_9,I_{12}}t_{J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}|0^I 1^J \rangle \langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle \langle J_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|J_0\rangle t_{A_9,I_{12}}t_{J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}|0^I 1^J \rangle \langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle \langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_9,I_{12}}t_{J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}|0^I 1^J \rangle \langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle \langle J_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|J_0\rangle t_{A_9,I_{12}}t_{J_2} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I |\hat{g}|0^J 1^J \rangle \langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle \langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{A_9,I_{12}}t_{J_2} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I |\hat{g}|1^J 0^J \rangle \langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle \langle J_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{A_9,I_{12}}t_{J_2} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{12}, J_3)\rangle =$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}|0^I 1^J \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_3 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |J_0\rangle t_{A_9, I_{12}} t_{J_3}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{J_{3}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{J_{3}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{J_{3}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{12},J_2)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}|0^I 1^J \rangle \langle B_1| \hat{1}^-_{\alpha} |B_{11}\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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}|0^I 1^J \rangle \langle B_1| \hat{1}^-_{\alpha} |B_{11}\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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}|0^I 1^J \rangle \langle B_1| \hat{1}^-_{\alpha} |B_{11}\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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}|0^I 1^J \rangle \langle B_1| \hat{1}^-_{\alpha} |B_{11}\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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I |\hat{g}|0^J 1^J \rangle \langle B_1| \hat{1}^-_{\alpha} |B_{11}\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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I |\hat{g}|0^J 1^J \rangle \langle B_1| \hat{1}^-_{\alpha} |B_{11}\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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}|0^I 1^J \rangle \langle B_1| \hat{1}^-_{\alpha} |B_{11}\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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}|0^I 1^J \rangle \langle B_1| \hat{1}^-_{\alpha} |B_{11}\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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}|0^I 1^J \rangle \langle B_1| \hat{1}^-_{\alpha} |B_{11}\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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}|0^I 1^J \rangle \langle B_1| \hat{1}^-_{\alpha} |B_{11}\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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^J |\hat{g}|0^J 1^J \rangle \langle B_1| \hat{1}^-_{\alpha} |B_{11}\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} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 0^I |\hat{g}|0^J 1^J \rangle \langle B_1| \hat{1}^-_{\alpha} |B_{11}\rangle \langle I_{12}| \hat{0}^+_{\alpha} |I_0\rangle \langle J_2| \hat{0}^+_{\alpha} \hat{1}^-_{\alpha} |J_0\rangle$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{12},J_{3})\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{1},J_{3}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{1},J_{3}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{1},J_{3}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{1},J_{3}} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{1},J_{3}} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{12}}t_{B_{1},J_{3}} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{3}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{3}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{3}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,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_2 |\hat{0}_\alpha^- |B_{11}\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_2,J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 0^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\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_2,J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 1^J |\hat{g}| 1^I 1^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\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_2,J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 1^J |\hat{g}| 1^I 1^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\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_2,J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 1^I |\hat{g}| 0^J 0^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\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_2,J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 1^I |\hat{g}| 1^J 1^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\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_2,J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 0^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11}|\hat{1}_\alpha^+ |I_0\rangle \langle J_1 |\hat{0}_\alpha^+ \hat{0}_\alpha^- |J_0\rangle t_{B_2} t_{A_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_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11}|\hat{1}_\alpha^+ |I_0\rangle \langle J_1 |\hat{0}_\alpha^+ \hat{0}_\alpha^- |J_0\rangle t_{B_2} t_{A_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_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11}|\hat{1}_\alpha^+ |I_0\rangle \langle J_1 |\hat{0}_\alpha^+ \hat{0}_\alpha^- |J_0\rangle t_{B_2} t_{A_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_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11}|\hat{1}_\alpha^+ |I_0\rangle \langle J_1 |\hat{0}_\alpha^+ \hat{0}_\alpha^- |J_0\rangle t_{B_2} t_{A_9,I_{11}} t_{J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 1^J |\hat{g}| 0^J 0^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11}|\hat{1}_\alpha^+ |I_0\rangle \langle J_1 |\hat{0}_\alpha^+ \hat{0}_\alpha^- |J_0\rangle t_{B_2} t_{A_9,I_{11}} t_{J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 1^J |\hat{g}| 0^J 0^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11}|\hat{1}_\alpha^+ |I_0\rangle \langle J_1 |\hat{0}_\alpha^+ \hat{0}_\alpha^- |J_0\rangle t_{B_2} t_{A_9,I_{11}} t_{J_1} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 1^J |\hat{g}| 0^J 0^J \rangle \langle B_2 |\hat{0}_\alpha$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{11},J_{1})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{3},J_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{3},J_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{3},J_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{3},J_{1}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{J}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{3},J_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{11},J_2)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 1^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\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_2,J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 1^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\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_2,J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 1^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\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_2,J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 1^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\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_2,J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 1^I |\hat{g}| 0^J 1^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\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_2,J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 1^I |\hat{g}| 1^J 0^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\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_2,J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 1^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11}|\hat{1}_\alpha^+ |I_0\rangle \langle J_2 |\hat{0}_\alpha^+ \hat{1}_\alpha^- |J_0\rangle t_{B_2} t_{A_9,I_{11}} t_{J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 1^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11}|\hat{1}_\alpha^+ |I_0\rangle \langle J_2 |\hat{0}_\alpha^+ \hat{1}_\beta^- |J_0\rangle t_{B_2} t_{A_9,I_{11}} t_{J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 1^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11}|\hat{1}_\alpha^+ |I_0\rangle \langle J_2 |\hat{0}_\alpha^+ \hat{1}_\alpha^- |J_0\rangle t_{B_2} t_{A_9,I_{11}} t_{J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 1^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11}|\hat{1}_\alpha^+ |I_0\rangle \langle J_2 |\hat{0}_\alpha^+ \hat{1}_\alpha^- |J_0\rangle t_{B_2} t_{A_9,I_{11}} t_{J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 1^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11}|\hat{1}_\alpha^+ |I_0\rangle \langle J_2 |\hat{0}_\alpha^+ \hat{1}_\alpha^- |J_0\rangle t_{B_2} t_{A_9,I_{11}} t_{J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 1^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11}|\hat{1}_\alpha^+ |I_0\rangle \langle J_2 |\hat{0}_\alpha^+ \hat{1}_\alpha^- |J_0\rangle t_{B_2} t_{A_9,I_{11}} t_{J_2} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^J 1^J \rangle \langle B_2 |\hat{0}_\alpha$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{11},J_3)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_3|\hat{0}_{\alpha}^+\hat{1}_{\alpha}^-|J_0\rangle t_{A_9,I_{11}}t_{B_2,J_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_3|\hat{0}_{\beta}^+\hat{1}_{\beta}^-|J_0\rangle t_{A_9,I_{11}}t_{B_2,J_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_3|\hat{1}_{\alpha}^+\hat{0}_{\alpha}^-|J_0\rangle t_{A_9,I_{11}}t_{B_2,J_3} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_3|\hat{1}_{\beta}^+\hat{0}_{\beta}^-|J_0\rangle t_{A_9,I_{11}}t_{B_2,J_3} \end{split}$$

$$\begin{split} &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\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_{2},J_{3}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\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_{2},J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle I_{0}|\hat$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{11},J_2)\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\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_3,J_2} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\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_3,J_2} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\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_3,J_2} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_2|\hat{1}^+_{\beta}\hat{0}^-_{\alpha}|J_0\rangle t_{A_9,I_{11}}t_{B_3,J_2} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|0^J1^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\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_3,J_2} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^B1^I|\hat{g}|1^J0^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\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_3,J_2} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B0^J|\hat{g}|1^I1^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|J_0\rangle t_{B_3}t_{A_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_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\beta}\hat{1}^-_{\alpha}|J_0\rangle t_{B_3}t_{A_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_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\beta}\hat{0}^-_{\alpha}|J_0\rangle t_{B_3}t_{A_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_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{B_3}t_{A_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_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{B_3}t_{A_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_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{B_3}t_{A_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_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_2|\hat{0}^+_{\alpha}\hat{0}^-_{\alpha}|J_0\rangle t_{B_3}t_{A_9,I_{11}}t_{J_2} \\ &+\frac{1}{4}\sum_{J}\sum_{J}\langle 0^B1^I|\hat{g}|0^J1^J\rangle\langle B_3|\hat{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{11},J_3)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 1^J \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_3 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |J_0\rangle t_{A_9,I_{11}} t_{B_3,J_3} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 1^J \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_3 |\hat{0}_{\beta}^+ \hat{1}_{\beta}^- |J_0\rangle t_{A_9,I_{11}} t_{B_3,J_3} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 0^J |\hat{g}| 1^I 1^J \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_3 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- |J_0\rangle t_{A_9,I_{11}} t_{B_3,J_3} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\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_{3},J_{3}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\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_{3},J_{3}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\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_{3},J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{3}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{0}_{\alpha}^{-}|I_{0}^{I}|\hat{0}_{\alpha}^{-}|I$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{11},J_{1})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{1}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{1}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{1}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{1}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{11},J_{1})\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{1},J_{1}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}1^{I}|\hat{g}|0^{J}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{B}0^{J}|\hat{g}|1^{I}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{1}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{1}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{1}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{1}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{11},J_{2})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{2}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{2}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{2}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{2}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{2}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{2}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{11},J_{3})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{3}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{3}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{3}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{3}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{3}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{J_{3}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{11},J_{2})\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{1},J_{2}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{1},J_{2}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{1},J_{2}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{9},I_{11}}t_{B_{1},J_{2}} \end{split}$$

$$\begin{split} &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}|B_{0}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}|B_{0}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}|B_{0}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}|B_{0}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}|B_{0}\rangle\langle$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{11},J_{3})\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}}{+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}}\\ &+\frac{1}{4}\sum_{I}\sum_{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_4,I_{12},J_5)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|0^J 1^J \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle \langle J_5 |\hat{0}^+_{\beta} \hat{1}^-_{\alpha}|J_0 \rangle t_{A_9,I_{12}} t_{B_4,J_5} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|1^J 0^J \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle \langle J_5 |\hat{1}^+_{\beta} \hat{0}^-_{\alpha}|J_0 \rangle t_{A_9,I_{12}} t_{B_4,J_5} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_4,I_{11},J_5)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 1^I |\hat{g}|0^J 1^J \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_{11}|\hat{1}^+_{\alpha}|I_0 \rangle \langle J_5 |\hat{0}^+_{\beta}\hat{1}^-_{\alpha}|J_0 \rangle t_{A_9,I_{11}} t_{B_4,J_5} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 1^I |\hat{g}|1^J 0^J \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_{11}|\hat{1}^+_{\alpha}|I_0 \rangle \langle J_5 |\hat{1}^+_{\beta}\hat{0}^-_{\alpha}|J_0 \rangle t_{A_9,I_{11}} t_{B_4,J_5} \end{split}$$

$$\langle (A_9, B_{11}) | \hat{H} | (A_9, B_{14}, I_7, J_{12}) \rangle =$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 1^B | \hat{g} | 0^J 0^I \rangle \langle B_{14} | \hat{1}^+_{\beta} \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_7 | \hat{0}^-_{\beta} | I_0 \rangle \langle J_{12} | \hat{0}^+_{\alpha} | J_0 \rangle t_{A_9, J_{12}} t_{B_{14}, I_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{14},I_8,J_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^B 1^B |\hat{g}|0^J 1^I \rangle \langle B_{14}|\hat{1}^+_{\beta} \hat{0}^-_{\alpha} |B_{11}\rangle \langle I_8|\hat{1}^-_{\beta} |I_0\rangle \langle J_{12}|\hat{0}^+_{\alpha} |J_0\rangle t_{A_9,J_{12}} t_{B_{14},I_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{13},I_7,J_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 1^B |\hat{g}|0^I 0^J \rangle \langle B_{13}|\hat{1}^+_\beta \hat{1}^-_\alpha |B_{11}\rangle \langle I_7|\hat{0}^-_\beta |I_0\rangle \langle J_{12}|\hat{0}^+_\alpha |J_0\rangle t_{A_9,J_{12}} t_{B_{13},I_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{13}, I_8, J_{12})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^B 1^B|\hat{g}|1^I 0^J\rangle\langle B_{13}|\hat{1}^+_{\beta}\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{A_9, J_{12}}t_{B_{13}, I_8}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{14}, I_7, J_{11})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^B 1^B|\hat{g}|1^J 0^I\rangle\langle B_{14}|\hat{1}^+_{\beta}\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_9, J_{11}}t_{B_{14}, I_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{14},I_8,J_{11})\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 0^B 1^B |\hat{g}| 1^J 1^I \rangle \langle B_{14}|\hat{1}^+_\beta \hat{0}^-_\alpha |B_{11}\rangle \langle I_8|\hat{1}^-_\beta |I_0\rangle \langle J_{11}|\hat{1}^+_\alpha |J_0\rangle t_{A_9,J_{11}} t_{B_{14},I_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{13}, I_7, J_{11})\rangle =$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 1^B 1^B |\hat{g}|0^I 1^J \rangle \langle B_{13}|\hat{1}^+_{\beta} \hat{1}^-_{\alpha} |B_{11}\rangle \langle I_7|\hat{0}^-_{\beta} |I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha} |J_0\rangle t_{A_9, J_{11}} t_{B_{13}, I_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{13},I_8,J_{11})\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 1^B 1^B |\hat{g}| 1^I 1^J \rangle \langle B_{13}| \hat{1}_\beta^+ \hat{1}_\alpha^- |B_{11}\rangle \langle I_8| \hat{1}_\beta^- |I_0\rangle \langle J_{11}| \hat{1}_\alpha^+ |J_0\rangle t_{A_9,J_{11}} t_{B_{13},I_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{9},J_{12})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{12}}t_{B_{12},I_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{10},J_{12})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|1^{B}0^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|1^{B}0^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{12}}t_{B_{12},I_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{12},I_9,J_{11})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}| 1^B 1^J \rangle \langle B_{12}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |B_{11}\rangle \langle I_9| \hat{0}^-_{\alpha} |I_0\rangle \langle J_{11}| \hat{1}^+_{\alpha} |J_0\rangle t_{A_9,B_{12}} t_{I_9,J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}| 1^B 1^J \rangle \langle B_{12}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |B_{11}\rangle \langle I_9| \hat{0}^-_{\alpha} |I_0\rangle \langle J_{11}| \hat{1}^+_{\alpha} |J_0\rangle t_{A_9,J_{11}} t_{B_{12},I_9} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{12},I_{10},J_{11})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},B_{12}}t_{I_{10},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{B}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle B_{12}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{B_{12},I_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{15},I_{6},J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|0^{I}0^{J}\rangle\langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle\langle I_{6}|\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{12}}t_{B_{15},I_{6}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{I}0^{J}\rangle\langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle\langle I_{6}|\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{12}}t_{B_{15},I_{6}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{15},I_{6},J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}0^{I}|\hat{g}|0^{I}1^{J}\rangle\langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle\langle I_{6}|\hat{0}_{\beta}^{-}\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{B_{15},I_{6}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{B}1^{I}|\hat{g}|1^{I}1^{J}\rangle\langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle\langle I_{6}|\hat{1}_{\beta}^{-}\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{9},J_{11}}t_{B_{15},I_{6}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_8,I_{14},J_{12})\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 0^B |\hat{g}|0^I 0^J \rangle \langle B_8 |\hat{0}^-_\beta \hat{0}^-_\alpha |B_{11}\rangle \langle I_{14} |\hat{0}^+_\beta |I_0\rangle \langle J_{12} |\hat{0}^+_\alpha |J_0\rangle t_{A_9,J_{12}} t_{B_8,I_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_7,I_{14},J_{12})\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 1^B |\hat{g}|0^I 0^J \rangle \langle B_7 |\hat{0}^-_\beta \hat{1}^-_\alpha |B_{11}\rangle \langle I_{14} |\hat{0}^+_\beta |I_0\rangle \langle J_{12} |\hat{0}^+_\alpha |J_0\rangle t_{A_9,J_{12}} t_{B_7,I_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_8, I_{13}, J_{12})\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 0^B |\hat{g}| 1^I 0^J \rangle \langle B_8 |\hat{0}_{\beta}^- \hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0\rangle t_{A_9, J_{12}} t_{B_8, I_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_7,I_{13},J_{12})\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 1^B |\hat{g}| 1^I 0^J \rangle \langle B_7 |\hat{0}^-_\beta \hat{1}^-_\alpha |B_{11}\rangle \langle I_{13}|\hat{1}^+_\beta |I_0\rangle \langle J_{12}|\hat{0}^+_\alpha |J_0\rangle t_{A_9,J_{12}} t_{B_7,I_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_8,I_{14},J_{11})\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 0^B |\hat{g}|0^I 1^J \rangle \langle B_8 |\hat{0}^-_\beta \hat{0}^-_\alpha |B_{11}\rangle \langle I_{14} |\hat{0}^+_\beta |I_0\rangle \langle J_{11} |\hat{1}^+_\alpha |J_0\rangle t_{A_9,J_{11}} t_{B_8,I_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_7, I_{14}, J_{11})\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 1^B |\hat{g}|0^I 1^J \rangle \langle B_7 |\hat{0}^-_{\beta} \hat{1}^-_{\alpha} |B_{11}\rangle \langle I_{14} |\hat{0}^+_{\beta} |I_0\rangle \langle J_{11} |\hat{1}^+_{\alpha} |J_0\rangle t_{A_9, J_{11}} t_{B_7, I_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_8,I_{13},J_{11})\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 0^B 0^B |\hat{g}| 1^I 1^J \rangle \langle B_8 |\hat{0}^-_\beta \hat{0}^-_\alpha |B_{11}\rangle \langle I_{13}| \hat{1}^+_\beta |I_0\rangle \langle J_{11}| \hat{1}^+_\alpha |J_0\rangle t_{A_9,J_{11}} t_{B_8,I_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_7, I_{13}, J_{11})\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 1^B |\hat{g}| 1^I 1^J \rangle \langle B_7 |\hat{0}^-_{\beta} \hat{1}^-_{\alpha} |B_{11}\rangle \langle I_{13} |\hat{1}^+_{\beta} |I_0\rangle \langle J_{11} |\hat{1}^+_{\alpha} |J_0\rangle t_{A_9, J_{11}} t_{B_7, I_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_4,I_5,J_{12})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 1^I |\hat{g}|0^I 0^J \rangle \langle B_4 |\hat{0}_\beta^- |B_{11}\rangle \langle I_5 |\hat{0}_\beta^+ \hat{1}_\alpha^- |I_0\rangle \langle J_{12} |\hat{0}_\alpha^+ |J_0\rangle t_{A_9,J_{12}} t_{B_4,I_5} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|1^I 0^J \rangle \langle B_4 |\hat{0}_\beta^- |B_{11}\rangle \langle I_5 |\hat{1}_\beta^+ \hat{0}_\alpha^- |I_0\rangle \langle J_{12} |\hat{0}_\alpha^+ |J_0\rangle t_{A_9,J_{12}} t_{B_4,I_5} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_4,I_5,J_{11})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 1^I |\hat{g}|0^I 1^J \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_5 |\hat{0}^+_{\beta} \hat{1}^-_{\alpha}|I_0 \rangle \langle J_{11} |\hat{1}^+_{\alpha}|J_0 \rangle t_{A_9,J_{11}} t_{B_4,I_5} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^B 0^I |\hat{g}|1^I 1^J \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_5 |\hat{1}^+_{\beta} \hat{0}^-_{\alpha}|I_0 \rangle \langle J_{11} |\hat{1}^+_{\alpha}|J_0 \rangle t_{A_9,J_{11}} t_{B_4,I_5} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{11},B_2,I_9)\rangle = \\ &+ \frac{1}{4} \sum_I \langle 0^A 1^A |\hat{g}|0^B 0^I \rangle \langle A_{11}|\hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{+} |A_9\rangle \langle B_2|\hat{0}_{\alpha}^{-} |B_{11}\rangle \langle I_9|\hat{0}_{\alpha}^{-} |I_0\rangle t_{B_2} t_{A_{11},I_9} \\ &+ \frac{1}{4} \sum_I \langle 0^A 1^A |\hat{g}|0^I 0^B \rangle \langle A_{11}|\hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{+} |A_9\rangle \langle B_2|\hat{0}_{\alpha}^{-} |B_{11}\rangle \langle I_9|\hat{0}_{\alpha}^{-} |I_0\rangle t_{B_2} t_{A_{11},I_9} \\ &+ \frac{-1}{4} \sum_I \langle 0^A 1^A |\hat{g}|0^I 0^B \rangle \langle A_{11}|\hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{+} |A_9\rangle \langle B_2|\hat{0}_{\alpha}^{-} |B_{11}\rangle \langle I_9|\hat{0}_{\alpha}^{-} |I_0\rangle t_{B_2} t_{A_{11},I_9} \\ &+ \frac{-1}{4} \sum_I \langle 0^A 1^A |\hat{g}|0^B 0^I \rangle \langle A_{11}|\hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{+} |A_9\rangle \langle B_2|\hat{0}_{\alpha}^{-} |B_{11}\rangle \langle I_9|\hat{0}_{\alpha}^{-} |I_0\rangle t_{B_2} t_{A_{11},I_9} \end{split}$$

$$\begin{split} & \langle (A_9,B_{11})|\hat{H}|(A_{11},B_3,I_9)\rangle = \\ & + \frac{1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}|0^B 0^I \rangle \langle A_{11}|\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^+ |A_9\rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_9|\hat{0}_{\alpha}^- |I_0\rangle t_{B_3} t_{A_{11},I_9} \\ & + \frac{1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}|0^I 0^B \rangle \langle A_{11}|\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^+ |A_9\rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_9|\hat{0}_{\alpha}^- |I_0\rangle t_{B_3} t_{A_{11},I_9} \\ & + \frac{-1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}|0^I 0^B \rangle \langle A_{11}|\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^+ |A_9\rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_9|\hat{0}_{\alpha}^- |I_0\rangle t_{B_3} t_{A_{11},I_9} \\ & + \frac{-1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}|0^B 0^I \rangle \langle A_{11}|\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^+ |A_9\rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_9|\hat{0}_{\alpha}^- |I_0\rangle t_{B_3} t_{A_{11},I_9} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_{13}, B_2, I_7)\rangle =$$

$$+\frac{1}{2} \sum_{I} \langle 0^A 1^A |\hat{g}|0^B 0^I \rangle \langle A_{13}|\hat{0}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle B_2|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7|\hat{0}_{\beta}^- |I_0\rangle t_{B_2} t_{A_{13}, I_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{13},B_3,I_7)\rangle = \\ &+ \tfrac{1}{2} \sum_I \langle 0^A 1^A |\hat{g}|0^B 0^I \rangle \langle A_{13}|\hat{0}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7|\hat{0}_{\beta}^- |I_0\rangle t_{B_3} t_{A_{13},I_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{11},B_2,I_{10})\rangle = \\ &+ \frac{1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}|0^B 1^I \rangle \langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_9\rangle \langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_0\rangle t_{B_2} t_{A_{11},I_{10}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}|1^I 0^B \rangle \langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_9\rangle \langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_0\rangle t_{B_2} t_{A_{11},I_{10}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}|1^I 0^B \rangle \langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_9\rangle \langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_0\rangle t_{B_2} t_{A_{11},I_{10}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}|0^B 1^I \rangle \langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_9\rangle \langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_0\rangle t_{B_2} t_{A_{11},I_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{11},B_3,I_{10})\rangle = \\ &+ \frac{1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}|0^B 1^I \rangle \langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_9\rangle \langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_0\rangle t_{B_3} t_{A_{11},I_{10}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}|1^I 0^B \rangle \langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_9\rangle \langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_0\rangle t_{B_3} t_{A_{11},I_{10}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}|1^I 0^B \rangle \langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_9\rangle \langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_0\rangle t_{B_3} t_{A_{11},I_{10}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}|0^B 1^I \rangle \langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_9\rangle \langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_0\rangle t_{B_3} t_{A_{11},I_{10}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_{13}, B_2, I_8)\rangle =$$

$$+\frac{1}{2} \sum_{I} \langle 0^A 1^A |\hat{g}|0^B 1^I \rangle \langle A_{13}|\hat{0}_{\alpha}^{+} \hat{1}_{\beta}^{+} |A_9\rangle \langle B_2|\hat{0}_{\alpha}^{-} |B_{11}\rangle \langle I_8|\hat{1}_{\beta}^{-} |I_0\rangle t_{B_2} t_{A_{13}, I_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{13},B_3,I_8)\rangle = \\ &+ \frac{1}{2} \sum_I \langle 0^A 1^A |\hat{g}|0^B 1^I \rangle \langle A_{13}|\hat{0}_{\alpha}^{+} \hat{1}_{\beta}^{+} |A_9\rangle \langle B_3|\hat{0}_{\alpha}^{-} |B_{11}\rangle \langle I_8|\hat{1}_{\beta}^{-} |I_0\rangle t_{B_3} t_{A_{13},I_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{11},I_{9})\rangle = \\ &+ \frac{1}{4} \sum_{I} \langle 0^{A}1^{A}|\hat{g}|1^{B}0^{I}\rangle \langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{11},I_{9}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^{A}1^{A}|\hat{g}|0^{I}1^{B}\rangle \langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{11},I_{9}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^{A}1^{A}|\hat{g}|0^{I}1^{B}\rangle \langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{11},I_{9}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^{A}1^{A}|\hat{g}|1^{B}0^{I}\rangle \langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{11},I_{9}} \end{split}$$

$$\begin{split} & \langle (A_9,B_{11})|\hat{H}|(A_{11},B_1,I_9)\rangle = \\ & + \frac{1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}| 1^B 0^I \rangle \langle A_{11}|\hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{+} |A_9\rangle \langle B_1|\hat{1}_{\alpha}^{-} |B_{11}\rangle \langle I_9|\hat{0}_{\alpha}^{-} |I_0\rangle t_{B_1} t_{A_{11},I_9} \\ & + \frac{1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}| 0^I 1^B \rangle \langle A_{11}|\hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{+} |A_9\rangle \langle B_1|\hat{1}_{\alpha}^{-} |B_{11}\rangle \langle I_9|\hat{0}_{\alpha}^{-} |I_0\rangle t_{B_1} t_{A_{11},I_9} \\ & + \frac{-1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}| 0^I 1^B \rangle \langle A_{11}|\hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{+} |A_9\rangle \langle B_1|\hat{1}_{\alpha}^{-} |B_{11}\rangle \langle I_9|\hat{0}_{\alpha}^{-} |I_0\rangle t_{B_1} t_{A_{11},I_9} \\ & + \frac{-1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}| 1^B 0^I \rangle \langle A_{11}|\hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{+} |A_9\rangle \langle B_1|\hat{1}_{\alpha}^{-} |B_{11}\rangle \langle I_9|\hat{0}_{\alpha}^{-} |I_0\rangle t_{B_1} t_{A_{11},I_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{13},I_7)\rangle = \\ &+ \frac{1}{2} \sum_I \langle 0^A 1^A |\hat{g}| 1^B 0^I \rangle \langle A_{13} |\hat{0}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle t_{A_{13},I_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_{13}, B_1, I_7)\rangle =$$

$$+\frac{1}{2} \sum_{I} \langle 0^A 1^A |\hat{g}| 1^B 0^I \rangle \langle A_{13} |\hat{0}_{\alpha}^{+} \hat{1}_{\beta}^{+} |A_9\rangle \langle B_1 |\hat{1}_{\alpha}^{-} |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^{-} |I_0\rangle t_{B_1} t_{A_{13}, I_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{11},I_{10})\rangle = \\ &+ \frac{1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}| 1^B 1^I \rangle \langle A_{11}|\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^+ |A_9\rangle \langle B_0|\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle t_{A_{11},I_{10}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}| 1^I 1^B \rangle \langle A_{11}|\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^+ |A_9\rangle \langle B_0|\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle t_{A_{11},I_{10}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}| 1^I 1^B \rangle \langle A_{11}|\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^+ |A_9\rangle \langle B_0|\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle t_{A_{11},I_{10}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^A 1^A |\hat{g}| 1^B 1^I \rangle \langle A_{11}|\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^+ |A_9\rangle \langle B_0|\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle t_{A_{11},I_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{11},B_{1},I_{10})\rangle = \\ &+ \frac{1}{4} \sum_{I} \langle 0^{A}1^{A}|\hat{g}|1^{B}1^{I}\rangle \langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{1}}t_{A_{11},I_{10}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^{A}1^{A}|\hat{g}|1^{I}1^{B}\rangle \langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{1}}t_{A_{11},I_{10}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^{A}1^{A}|\hat{g}|1^{I}1^{B}\rangle \langle A_{11}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{1}}t_{A_{11},I_{10}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^{A}1^{A}|\hat{g}|1^{B}1^{I}\rangle \langle A_{11}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{1}}t_{A_{11},I_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{13},I_8)\rangle = \\ &+ \frac{1}{2} \sum_I \langle 0^A 1^A |\hat{g}| 1^B 1^I \rangle \langle A_{13} |\hat{0}^+_\alpha \hat{1}^+_\beta |A_9\rangle \langle B_0 |\hat{1}^-_\alpha |B_{11}\rangle \langle I_8 |\hat{1}^-_\beta |I_0\rangle t_{A_{13},I_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{13},B_1,I_8)\rangle = \\ &+ \frac{1}{2} \sum_I \langle 0^A 1^A |\hat{g}| 1^B 1^I \rangle \langle A_{13}|\hat{0}_{\alpha}^{+} \hat{1}_{\beta}^{+} |A_9\rangle \langle B_1|\hat{1}_{\alpha}^{-} |B_{11}\rangle \langle I_8|\hat{1}_{\beta}^{-} |I_0\rangle t_{B_1} t_{A_{13},I_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},B_2,I_7)\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^A |\hat{g}|0^B 0^I \rangle \langle A_{14}|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}^{+}|A_9\rangle \langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_7|\hat{0}_{\beta}^{-}|I_0\rangle t_{B_2} t_{A_{14},I_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_{14}, B_3, I_7)\rangle =$$

$$+ \tfrac{1}{2} \sum_{I} \langle 1^A 1^A | \hat{g} | 0^B 0^I \rangle \langle A_{14} | \hat{1}_{\alpha}^+ \hat{1}_{\beta}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle t_{B_3} t_{A_{14}, I_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},B_2,I_8)\rangle = \\ &+ \tfrac{1}{2} \sum_I \langle 1^A 1^A |\hat{g}| 0^B 1^I \rangle \langle A_{14} |\hat{1}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle t_{B_2} t_{A_{14},I_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_{14}, B_3, I_8)\rangle =$$

$$+\frac{1}{2} \sum_{I} \langle 1^A 1^A |\hat{g}|0^B 1^I \rangle \langle A_{14}|\hat{1}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8|\hat{1}_{\beta}^- |I_0\rangle t_{B_3} t_{A_{14}, I_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},I_7)\rangle = \\ &+ \frac{1}{2} \sum_I \langle 1^A 1^A |\hat{g}| 1^B 0^I \rangle \langle A_{14} |\hat{1}^+_\alpha \hat{1}^+_\beta |A_9\rangle \langle B_0 |\hat{1}^-_\alpha |B_{11}\rangle \langle I_7 |\hat{0}^-_\beta |I_0\rangle t_{A_{14},I_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},B_1,I_7)\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^A |\hat{g}| 1^B 0^I \rangle \langle A_{14} |\hat{1}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle t_{B_1} t_{A_{14},I_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},I_8)\rangle = \\ &+ \frac{1}{2} \sum_I \langle 1^A 1^A |\hat{g}| 1^B 1^I \rangle \langle A_{14} |\hat{1}_{\alpha}^+ \hat{1}_{\beta}^+ |A_9\rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle t_{A_{14},I_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{14},B_1,I_8)\rangle = \\ &+ \frac{1}{2} \sum_I \langle 1^A 1^A |\hat{g}| 1^B 1^I \rangle \langle A_{14} |\hat{1}_{\alpha}^{+} \hat{1}_{\beta}^{+} |A_9\rangle \langle B_1 |\hat{1}_{\alpha}^{-} |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^{-} |I_0\rangle t_{B_1} t_{A_{14},I_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{14},I_7)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 1^B |\hat{g}|0^B 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9 \rangle \langle B_{14}|\hat{1}_{\beta}^+ \hat{0}_{\alpha}^-|B_{11} \rangle \langle I_7 |\hat{0}_{\beta}^-|I_0 \rangle t_{B_{14},I_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{14},I_7)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 1^B |\hat{g}| 0^B 0^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_{14} |\hat{1}_{\beta}^+ \hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle t_{A_1} t_{B_{14},I_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{14},I_8)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 1^B |\hat{g}|0^B 1^I \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_{14}|\hat{1}_{\beta}^+ \hat{0}_{\alpha}^-|B_{11}\rangle \langle I_8|\hat{1}_{\beta}^-|I_0\rangle t_{B_{14},I_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{14},I_8)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 1^B |\hat{g}| 0^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_{14} |\hat{1}_{\beta}^+ \hat{0}_{\alpha}^-|B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^-|I_0\rangle t_{A_1} t_{B_{14},I_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{13},I_7)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 1^B |\hat{g}| 1^B 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_{13}|\hat{1}_{\beta}^+ \hat{1}_{\alpha}^-|B_{11}\rangle \langle I_7|\hat{0}_{\beta}^-|I_0\rangle t_{B_{13},I_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{13},I_7)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 1^B |\hat{g}| 1^B 0^I \rangle \langle A_1 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_{13}|\hat{1}_{\beta}^+ \hat{1}_{\alpha}^-|B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^-|I_0\rangle t_{A_1} t_{B_{13},I_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{13},I_8)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 1^B |\hat{g}| 1^B 1^I \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_{13}|\hat{1}_{\beta}^+ \hat{1}_{\alpha}^-|B_{11}\rangle \langle I_8|\hat{1}_{\beta}^-|I_0\rangle t_{B_{13},I_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{13},I_8)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 1^B |\hat{g}| 1^B 1^I \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_{13}|\hat{1}^+_{\beta}\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_8|\hat{1}^-_{\beta}|I_0 \rangle t_{A_1} t_{B_{13},I_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{14},I_7)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 1^A 1^B |\hat{g}| 0^B 0^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_{14} |\hat{1}^+_{\beta} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle t_{A_2} t_{B_{14},I_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{14},I_7)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 1^A 1^B |\hat{g}| 0^B 0^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_{14} |\hat{1}^+_{\beta} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle t_{A_3} t_{B_{14},I_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{14},I_8)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 1^A 1^B |\hat{g}| 0^B 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_{14} |\hat{1}^+_{\beta} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle t_{A_2} t_{B_{14},I_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{14}, I_8)\rangle =$$

$$+ \frac{-1}{2} \sum_{I} \langle 1^A 1^B |\hat{g}| 0^B 1^I \rangle \langle A_3 |\hat{1}^+_{\alpha} |A_9\rangle \langle B_{14} |\hat{1}^+_{\beta} \hat{0}^-_{\alpha} |B_{11}\rangle \langle I_8 |\hat{1}^-_{\beta} |I_0\rangle t_{A_3} t_{B_{14}, I_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{13},I_7)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 1^A 1^B |\hat{g}| 1^B 0^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_{13} |\hat{1}^+_{\beta} \hat{1}^-_{\alpha}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle t_{A_2} t_{B_{13},I_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{13},I_7)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 1^A 1^B |\hat{g}| 1^B 0^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_{13} |\hat{1}^+_{\beta} \hat{1}^-_{\alpha}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle t_{A_3} t_{B_{13},I_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{13},I_8)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 1^A 1^B |\hat{g}| 1^B 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_{13}|\hat{1}^+_{\beta}\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_8|\hat{1}^-_{\beta}|I_0 \rangle t_{A_2} t_{B_{13},I_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{13},I_8)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 1^A 1^B |\hat{g}| 1^B 1^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_{13} |\hat{1}^+_{\beta} \hat{1}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle t_{A_3} t_{B_{13},I_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{12},I_9)\rangle = \\ &+ \frac{1}{2} \sum_I \langle 0^A 0^B |\hat{g}|0^I 1^B \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_{12}|\hat{1}^+_{\beta} \hat{0}^-_{\beta}|B_{11} \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle t_{B_{12},I_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{12},I_9)\rangle = \\ &+ \frac{1}{2} \sum_I \langle 0^A 0^B |\hat{g}|0^I 1^B \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_{12} |\hat{1}^+_{\beta} \hat{0}^-_{\beta}|B_{11} \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle t_{A_1} t_{B_{12},I_9} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{12}, I_{10})\rangle =$$

$$+\frac{1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}| 1^I 1^B \rangle \langle A_0 |\hat{0}^+_{\alpha} | A_9 \rangle \langle B_{12} |\hat{1}^+_{\beta} \hat{0}^-_{\beta} | B_{11} \rangle \langle I_{10} |\hat{1}^-_{\alpha} | I_0 \rangle t_{B_{12}, I_{10}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{12},I_{10})\rangle = \\ &+ \frac{1}{2} \sum_I \langle 0^A 0^B |\hat{g}| 1^I 1^B \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_{12} |\hat{1}^+_{\beta} \hat{0}^-_{\beta}|B_{11} \rangle \langle I_{10} |\hat{1}^-_{\alpha}|I_0 \rangle t_{A_1} t_{B_{12},I_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{12},I_9)\rangle = \\ &+ \frac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}|0^I 1^B \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_{12} |\hat{1}^+_{\beta} \hat{0}^-_{\beta} |B_{11} \rangle \langle I_9 |\hat{0}^-_{\alpha} |I_0 \rangle t_{A_2} t_{B_{12},I_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{12},I_9)\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}|0^I 1^B \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_{12}|\hat{1}^+_{\beta} \hat{0}^-_{\beta} |B_{11} \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle t_{A_3} t_{B_{12},I_9} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{12}, I_{10})\rangle =$$

$$+ \tfrac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 1^I 1^B \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_{12} | \hat{1}^+_{\beta} \hat{0}^-_{\beta} | B_{11} \rangle \langle I_{10} | \hat{1}^-_{\alpha} | I_0 \rangle t_{A_2} t_{B_{12}, I_{10}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{12},I_{10})\rangle = \\ &+ \frac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}|1^I 1^B \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_{12} |\hat{1}^+_{\beta} \hat{0}^-_{\beta} |B_{11} \rangle \langle I_{10} |\hat{1}^-_{\alpha} |I_0 \rangle t_{A_3} t_{B_{12},I_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{15},I_{6})\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A} 1^{B} |\hat{g}| 0^{I} 0^{I} \rangle \langle A_{0}| \hat{0}_{\alpha}^{+} |A_{9} \rangle \langle B_{15}| \hat{1}_{\beta}^{+} |B_{11} \rangle \langle I_{6}| \hat{0}_{\beta}^{-} \hat{0}_{\alpha}^{-} |I_{0} \rangle t_{B_{15},I_{6}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A} 1^{B} |\hat{g}| 1^{I} 1^{I} \rangle \langle A_{0}| \hat{0}_{\alpha}^{+} |A_{9} \rangle \langle B_{15}| \hat{1}_{\beta}^{+} |B_{11} \rangle \langle I_{6}| \hat{1}_{\beta}^{-} \hat{1}_{\alpha}^{-} |I_{0} \rangle t_{B_{15},I_{6}} \end{split}$$

$$\langle (A_{9}, B_{11})|\hat{H}|(A_{1}, B_{15}, I_{6})\rangle =$$

$$+\frac{-1}{2} \sum_{I} \langle 0^{A} 1^{B} |\hat{g}| 0^{I} 0^{I} \rangle \langle A_{1} |\hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{15} |\hat{1}_{\beta}^{+} | B_{11} \rangle \langle I_{6} |\hat{0}_{\beta}^{-} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{15}, I_{6}}$$

$$+\frac{-1}{2} \sum_{I} \langle 0^{A} 1^{B} |\hat{g}| 1^{I} 1^{I} \rangle \langle A_{1} |\hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{15} |\hat{1}_{\beta}^{+} | B_{11} \rangle \langle I_{6} |\hat{1}_{\beta}^{-} \hat{1}_{\alpha}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{15}, I_{6}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{15},I_6)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 1^B |\hat{g}|0^I 0^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_{15}|\hat{1}_{\beta}^+ |B_{11} \rangle \langle I_6 |\hat{0}_{\beta}^- \hat{0}_{\alpha}^- |I_0 \rangle t_{A_2} t_{B_{15},I_6} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 1^B |\hat{g}|1^I 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_{15}|\hat{1}_{\beta}^+ |B_{11} \rangle \langle I_6 |\hat{1}_{\beta}^- \hat{1}_{\alpha}^- |I_0 \rangle t_{A_2} t_{B_{15},I_6} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{15},I_6)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 1^B |\hat{g}|0^I 0^I \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_{15}|\hat{1}^+_{\beta}|B_{11}\rangle \langle I_6|\hat{0}^-_{\beta}\hat{0}^-_{\alpha}|I_0\rangle t_{A_3} t_{B_{15},I_6} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 1^B |\hat{g}|1^I 1^I \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_{15}|\hat{1}^+_{\beta}|B_{11}\rangle \langle I_6|\hat{1}^-_{\beta}\hat{1}^-_{\alpha}|I_0\rangle t_{A_3} t_{B_{15},I_6} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_7,B_2,I_{14})\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^A |\hat{g}|0^B 0^I \rangle \langle A_7 |\hat{0}_{\alpha}^{+} \hat{0}_{\beta}^{-} |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^{-} |B_{11} \rangle \langle I_{14} |\hat{0}_{\beta}^{+} |I_0 \rangle t_{B_2} t_{A_7,I_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_7,B_3,I_{14})\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 0^A |\hat{g}| 0^B 0^I \rangle \langle A_7 |\hat{0}_{\alpha}^{+} \hat{0}_{\beta}^{-} |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^{-} |B_{11} \rangle \langle I_{14} |\hat{0}_{\beta}^{+} |I_0 \rangle t_{B_3} t_{A_7,I_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_7,I_{14})\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 0^A |\hat{g}| 1^B 0^I \rangle \langle A_7 |\hat{0}_{\alpha}^{+} \hat{0}_{\beta}^{-} |A_9\rangle \langle B_0 |\hat{1}_{\alpha}^{-} |B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^{+} |I_0\rangle t_{A_7,I_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_7, B_1, I_{14})\rangle =$$

$$+ \frac{-1}{2} \sum_{I} \langle 0^A 0^A |\hat{g}| 1^B 0^I \rangle \langle A_7 |\hat{0}_{\alpha}^{+} \hat{0}_{\beta}^{-} | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{14} |\hat{0}_{\beta}^{+} | I_0 \rangle t_{B_1} t_{A_7, I_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_7,B_2,I_{13})\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 0^A |\hat{g}|0^B 1^I \rangle \langle A_7 |\hat{0}_{\alpha}^{+} \hat{0}_{\beta}^{-} |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^{-} |B_{11} \rangle \langle I_{13} |\hat{1}_{\beta}^{+} |I_0 \rangle t_{B_2} t_{A_7,I_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_7, B_3, I_{13})\rangle =$$

$$+ \frac{-1}{2} \sum_{I} \langle 0^A 0^A | \hat{g} | 0^B 1^I \rangle \langle A_7 | \hat{0}_{\alpha}^+ \hat{0}_{\beta}^- | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_{13} | \hat{1}_{\beta}^+ | I_0 \rangle t_{B_3} t_{A_7, I_{13}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_7, I_{13})\rangle =$$

$$+ \frac{-1}{2} \sum_{I} \langle 0^A 0^A | \hat{g} | 1^B 1^I \rangle \langle A_7 | \hat{0}_{\alpha}^+ \hat{0}_{\beta}^- | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_{13} | \hat{1}_{\beta}^+ | I_0 \rangle t_{A_7, I_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_7,B_1,I_{13})\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 0^A |\hat{g}| 1^B 1^I \rangle \langle A_7 |\hat{0}_{\alpha}^{+} \hat{0}_{\beta}^{-} |A_9\rangle \langle B_1 |\hat{1}_{\alpha}^{-} |B_{11}\rangle \langle I_{13} |\hat{1}_{\beta}^{+} |I_0\rangle t_{B_1} t_{A_7,I_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_8,B_2,I_{14})\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 1^A |\hat{g}|0^I 0^B \rangle \langle A_8 |\hat{1}_{\alpha}^+ \hat{0}_{\beta}^- |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0 \rangle t_{B_2} t_{A_8,I_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_8,B_3,I_{14})\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 1^A |\hat{g}|0^I 0^B \rangle \langle A_8 |\hat{1}_{\alpha}^+ \hat{0}_{\beta}^- |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0 \rangle t_{B_3} t_{A_8,I_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_8,I_{14})\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 1^A |\hat{g}|0^I 1^B \rangle \langle A_8 |\hat{1}_{\alpha}^+ \hat{0}_{\beta}^- |A_9 \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0 \rangle t_{A_8,I_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_8, B_1, I_{14})\rangle =$$

$$+ \frac{-1}{2} \sum_{I} \langle 0^A 1^A | \hat{g} | 0^I 1^B \rangle \langle A_8 | \hat{1}_{\alpha}^+ \hat{0}_{\beta}^- | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_{14} | \hat{0}_{\beta}^+ | I_0 \rangle t_{B_1} t_{A_8, I_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_8,B_2,I_{13})\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 1^A |\hat{g}| 1^I 0^B \rangle \langle A_8 |\hat{1}_{\alpha}^+ \hat{0}_{\beta}^- |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0 \rangle t_{B_2} t_{A_8,I_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_8,B_3,I_{13})\rangle = \\ &+ \tfrac{-1}{2} \sum_I \langle 0^A 1^A |\hat{g}| 1^I 0^B \rangle \langle A_8 |\hat{1}_{\alpha}^{+} \hat{0}_{\beta}^{-} |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^{-} |B_{11} \rangle \langle I_{13} |\hat{1}_{\beta}^{+} |I_0 \rangle t_{B_3} t_{A_8,I_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_8,I_{13})\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 1^A |\hat{g}| 1^I 1^B \rangle \langle A_8 |\hat{1}_{\alpha}^+ \hat{0}_{\beta}^- |A_9\rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle t_{A_8,I_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_8,B_1,I_{13})\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 1^A |\hat{g}| 1^I 1^B \rangle \langle A_8 |\hat{1}_{\alpha}^{+} \hat{0}_{\beta}^{-} |A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^{-} |B_{11} \rangle \langle I_{13} |\hat{1}_{\beta}^{+} |I_0 \rangle t_{B_1} t_{A_8,I_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_8,I_{14})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}|0^B 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_8 |\hat{0}_{\beta}^- \hat{0}_{\alpha}^-|B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^+|I_0\rangle t_{B_8,I_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_8,I_{14})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}|0^B 0^I \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_8 |\hat{0}^-_{\beta} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle t_{A_1} t_{B_8,I_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{9},I_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|0^{B}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle t_{B_{9},I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^{A}0^{B}|\hat{g}|1^{B}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle t_{B_{9},I_{12}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^{A}0^{B}|\hat{g}|1^{B}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle t_{B_{9},I_{12}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|0^{B}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle t_{B_{9},I_{12}} \end{split}$$

$$\begin{split} & \langle (A_9,B_{11})|\hat{H}|(A_1,B_9,I_{12})\rangle = \\ & + \frac{1}{4} \sum_{I} \langle 0^A 1^B |\hat{g}|0^B 0^I \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_9|\hat{1}_{\alpha}^- \hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle t_{A_1} t_{B_9,I_{12}} \\ & + \frac{1}{4} \sum_{I} \langle 0^A 0^B |\hat{g}|1^B 0^I \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_9|\hat{0}_{\alpha}^- \hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle t_{A_1} t_{B_9,I_{12}} \\ & + \frac{-1}{4} \sum_{I} \langle 0^A 0^B |\hat{g}|1^B 0^I \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_9|\hat{1}_{\alpha}^- \hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle t_{A_1} t_{B_9,I_{12}} \\ & + \frac{-1}{4} \sum_{I} \langle 0^A 1^B |\hat{g}|0^B 0^I \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_9|\hat{0}_{\alpha}^- \hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle t_{A_1} t_{B_9,I_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_7,I_{14})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}| 1^B 0^I \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_7 |\hat{0}^-_{\beta} \hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle t_{B_7,I_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_7,I_{14})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}| 1^B 0^I \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_7 |\hat{0}^-_{\beta} \hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle t_{A_1} t_{B_7,I_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_8,I_{13})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}|0^B 1^I \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_8 |\hat{0}^-_{\beta} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle t_{B_8,I_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_8,I_{13})\rangle = \\ &+ \frac{1}{2} \sum_I \langle 0^A 0^B |\hat{g}|0^B 1^I \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_8 |\hat{0}^-_{\beta} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle t_{A_1} t_{B_8,I_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{9},I_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|0^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle t_{B_{9},I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^{A}0^{B}|\hat{g}|1^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle t_{B_{9},I_{11}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^{A}0^{B}|\hat{g}|1^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle t_{B_{9},I_{11}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|0^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle t_{B_{9},I_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_9,I_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \langle 0^A 1^B |\hat{g}|0^B 1^I \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_9 |\hat{1}^-_{\alpha} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle t_{A_1} t_{B_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 0^A 0^B |\hat{g}|1^B 1^I \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_9 |\hat{0}^-_{\alpha} \hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle t_{A_1} t_{B_9,I_{11}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^A 0^B |\hat{g}|1^B 1^I \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_9 |\hat{1}^-_{\alpha} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle t_{A_1} t_{B_9,I_{11}} \\ &+ \frac{-1}{4} \sum_{I} \langle 0^A 1^B |\hat{g}|0^B 1^I \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_9 |\hat{0}^-_{\alpha} \hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle t_{A_1} t_{B_9,I_{11}} \end{split}$$

$$\langle (A_9, B_{11}) | \hat{H} | (B_7, I_{13}) \rangle =$$

$$+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 1^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_7 | \hat{0}_{\beta}^- \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_{13} | \hat{1}_{\beta}^+ | I_0 \rangle t_{B_7, I_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_7,I_{13})\rangle = \\ &+ \frac{1}{2} \sum_I \langle 0^A 0^B |\hat{g}| 1^B 1^I \rangle \langle A_1 |\hat{0}^+_\alpha|A_9 \rangle \langle B_7 |\hat{0}^-_\beta \hat{1}^-_\alpha|B_{11} \rangle \langle I_{13} |\hat{1}^+_\beta|I_0 \rangle t_{A_1} t_{B_7,I_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_8,I_{14})\rangle = \\ &+ \frac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}|0^B 0^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_8 |\hat{0}^-_{\beta} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle t_{A_2} t_{B_8,I_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_8,I_{14})\rangle = \\ &+ \tfrac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}|0^B 0^I \rangle \langle A_3 |\hat{1}^+_\alpha |A_9\rangle \langle B_8 |\hat{0}^-_\beta \hat{0}^-_\alpha |B_{11}\rangle \langle I_{14} |\hat{0}^+_\beta |I_0\rangle t_{A_3} t_{B_8,I_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{9},I_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \langle 1^{A}1^{B}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle t_{A_{2}}t_{B_{9},I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 1^{A}0^{B}|\hat{g}|1^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle t_{A_{2}}t_{B_{9},I_{12}} \\ &+ \frac{-1}{4} \sum_{I} \langle 1^{A}0^{B}|\hat{g}|1^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{9}|\hat{1}_{\alpha}^{-}\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle t_{A_{2}}t_{B_{9},I_{12}} \\ &+ \frac{-1}{4} \sum_{I} \langle 1^{A}1^{B}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{9}|\hat{0}_{\alpha}^{-}\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle t_{A_{2}}t_{B_{9},I_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_9,I_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \langle 1^A 1^B |\hat{g}| 0^B 0^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_9 |\hat{1}^-_{\alpha} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle t_{A_3} t_{B_9,I_{12}} \\ &+ \frac{1}{4} \sum_{I} \langle 1^A 0^B |\hat{g}| 1^B 0^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_9 |\hat{0}^-_{\alpha} \hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle t_{A_3} t_{B_9,I_{12}} \\ &+ \frac{-1}{4} \sum_{I} \langle 1^A 0^B |\hat{g}| 1^B 0^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_9 |\hat{1}^-_{\alpha} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle t_{A_3} t_{B_9,I_{12}} \\ &+ \frac{-1}{4} \sum_{I} \langle 1^A 1^B |\hat{g}| 0^B 0^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_9 |\hat{0}^-_{\alpha} \hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle t_{A_3} t_{B_9,I_{12}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_7, I_{14})\rangle =$$

$$+ \frac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 1^B 0^I \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_7 | \hat{0}^-_{\beta} \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_{14} | \hat{0}^+_{\beta} | I_0 \rangle t_{A_2} t_{B_7, I_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_7,I_{14})\rangle = \\ &+ \tfrac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}| 1^B 0^I \rangle \langle A_3 |\hat{1}^+_\alpha |A_9\rangle \langle B_7 |\hat{0}^-_\beta \hat{1}^-_\alpha |B_{11}\rangle \langle I_{14} |\hat{0}^+_\beta |I_0\rangle t_{A_3} t_{B_7,I_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_8, I_{13})\rangle =$$

$$+\frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha} |A_9\rangle \langle B_8 |\hat{0}^-_{\beta} \hat{0}^-_{\alpha} |B_{11}\rangle \langle I_{13} |\hat{1}^+_{\beta} |I_0\rangle t_{A_2} t_{B_8, I_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_8,I_{13})\rangle = \\ &+ \frac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}| 0^B 1^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_8 |\hat{0}^-_{\beta} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle t_{A_3} t_{B_8,I_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_9,I_{11})\rangle = \\ &+ \frac{1}{4} \sum_I \langle 1^A 1^B |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}^+_\alpha |A_9 \rangle \langle B_9 |\hat{1}^-_\alpha \hat{0}^-_\alpha |B_{11} \rangle \langle I_{11} |\hat{1}^+_\alpha |I_0 \rangle t_{A_2} t_{B_9,I_{11}} \\ &+ \frac{1}{4} \sum_I \langle 1^A 0^B |\hat{g}|1^B 1^I \rangle \langle A_2 |\hat{1}^+_\alpha |A_9 \rangle \langle B_9 |\hat{0}^-_\alpha \hat{1}^-_\alpha |B_{11} \rangle \langle I_{11} |\hat{1}^+_\alpha |I_0 \rangle t_{A_2} t_{B_9,I_{11}} \\ &+ \frac{-1}{4} \sum_I \langle 1^A 0^B |\hat{g}|1^B 1^I \rangle \langle A_2 |\hat{1}^+_\alpha |A_9 \rangle \langle B_9 |\hat{1}^-_\alpha \hat{0}^-_\alpha |B_{11} \rangle \langle I_{11} |\hat{1}^+_\alpha |I_0 \rangle t_{A_2} t_{B_9,I_{11}} \\ &+ \frac{-1}{4} \sum_I \langle 1^A 1^B |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}^+_\alpha |A_9 \rangle \langle B_9 |\hat{0}^-_\alpha \hat{1}^-_\alpha |B_{11} \rangle \langle I_{11} |\hat{1}^+_\alpha |I_0 \rangle t_{A_2} t_{B_9,I_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_9,I_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \langle 1^A 1^B |\hat{g}| 0^B 1^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_9 |\hat{1}^-_{\alpha} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle t_{A_3} t_{B_9,I_{11}} \\ &+ \frac{1}{4} \sum_{I} \langle 1^A 0^B |\hat{g}| 1^B 1^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_9 |\hat{0}^-_{\alpha} \hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle t_{A_3} t_{B_9,I_{11}} \\ &+ \frac{-1}{4} \sum_{I} \langle 1^A 0^B |\hat{g}| 1^B 1^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_9 |\hat{1}^-_{\alpha} \hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle t_{A_3} t_{B_9,I_{11}} \\ &+ \frac{-1}{4} \sum_{I} \langle 1^A 1^B |\hat{g}| 0^B 1^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_9 |\hat{0}^-_{\alpha} \hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle t_{A_3} t_{B_9,I_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_7,I_{13})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}| 1^B 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_7 |\hat{0}^-_{\beta} \hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle t_{A_2} t_{B_7,I_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_7, I_{13})\rangle =$$

$$+\frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}| 1^B 1^I \rangle \langle A_3 |\hat{1}^+_{\alpha}| A_9 \rangle \langle B_7 |\hat{0}^-_{\beta} \hat{1}^-_{\alpha}| B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}| I_0 \rangle t_{A_3} t_{B_7, I_{13}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{2},I_{1})\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2},I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{B_{2},I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2},I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{2},I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2},I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{B}|\hat{g}|1^{I}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2},I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}} t_{I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}} t_{I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}} t_{I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}} t_{I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}} t_{I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}} t_{I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{3},I_{1})\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{3},I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{B_{3},I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3},I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{3},I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{3},I_{1}} \end{split}$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3},I_{1}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{I_{1}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{B_{3}}t_{I_{1}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{I_{1}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{3}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_2,I_1)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^B | \hat{g} | 0^I 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^B | \hat{g} | 0^I 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_1,B_2,I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^B | \hat{g} | 0^I 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^B | \hat{g} | 0^I 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^I | \hat{g} | 0^B 1^I \rangle$$

$$\begin{split} & + \frac{-1}{2} \sum_{I} \langle 0^{A} 0^{I} | \hat{g} | 0^{B} 0^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{0}_{\beta}^{+} \hat{0}_{\beta}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{2}} t_{I_{1}} \\ & + \frac{-1}{2} \sum_{I} \langle 0^{A} 1^{I} | \hat{g} | 0^{B} 1^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{1}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{2}} t_{I_{1}} \\ & + \frac{-1}{2} \sum_{I} \langle 0^{A} 1^{I} | \hat{g} | 0^{B} 1^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{2}} t_{I_{1}} \\ & + \frac{1}{2} \sum_{I} \langle 0^{A} 0^{B} | \hat{g} | 0^{I} 0^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{2}} t_{I_{1}} \\ & + \frac{1}{2} \sum_{I} \langle 0^{A} 0^{B} | \hat{g} | 1^{I} 1^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{1}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{2}} t_{I_{1}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_1, B_3, I_1)\rangle =$ $+ \tfrac{-1}{2} \sum \langle 0^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_1 | \hat{0}^+_\alpha | A_9 \rangle \langle B_3 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1} t_{B_3, I_1}$ $+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{3},I_{1}}$ $+\frac{-1}{2}\sum^{I}\langle 0^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{3},I_{1}}$ $+\frac{-1}{2}\sum_{I}^{I}\langle 0^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{3},I_{1}}$ $+\frac{1}{2}\sum\nolimits^{I}\langle 0^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{3},I_{1}}$ $+ \frac{1}{2} \sum_{\alpha} \langle 0^A 0^B | \hat{g} | 1^I 1^I \rangle \langle A_1 | \hat{0}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_1 | \hat{1}^+_{\alpha} \hat{1}^-_{\alpha} | I_0 \rangle t_{A_1} t_{B_3, I_1}$ $+ \frac{-1}{2} \sum \langle 0^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_1 | \hat{0}^+_\alpha | A_9 \rangle \langle B_3 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_1 | \hat{0}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_1,B_3} t_{I_1}$ $+\frac{-1}{2}\sum_{I}^{I}\langle 0^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{1},B_{3}}t_{I_{1}}$ $+ \frac{-1}{2} \sum_{\alpha} \langle 0^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_1, B_3} t_{I_1}$ $+ \tfrac{-1}{2} \sum_{} \langle 0^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{A_1,B_3} t_{I_1}$ $+\frac{1}{2}\sum\nolimits'\langle 0^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{3}}t_{I_{1}}$ $+\frac{1}{2}\sum^{I}\langle 0^{A}0^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{3}}t_{I_{1}}$ $+ \frac{-1}{2} \sum_{\alpha} \langle 0^{A} 0^{I} | \hat{g} | 0^{B} 0^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{B_{3}} t_{A_{1}, I_{1}}$ $+ \frac{-1}{2} \sum_{i}^{I} \langle 0^{A} 0^{I} | \hat{g} | 0^{B} 0^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{0}_{\beta}^{+} \hat{0}_{\beta}^{-} | I_{0} \rangle t_{B_{3}} t_{A_{1}, I_{1}}$ $+\frac{-1}{2}\sum^{I}\langle 0^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{1},I_{1}}$ $+\frac{-1}{2}\sum_{I}^{I}\langle 0^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{1},I_{1}}$ $+\frac{1}{2}\sum\nolimits^{I}\langle 0^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{1},I_{1}}$ $+\frac{1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{1},I_{1}}$ $+\frac{-1}{2}\sum\langle 0^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{3}}t_{I_{1}}$ $+\frac{-1}{2}\sum_{i}^{I}\langle 0^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{3}}t_{I_{1}}$ $+ \frac{-1}{2} \sum_{} \langle 0^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_1 | \hat{1}^+_{\alpha} \hat{1}^-_{\alpha} | I_0 \rangle t_{A_1} t_{B_3} t_{I_1}$

$$\begin{split} &+ \frac{-1}{2} \sum_{I} \langle 0^{A} 1^{I} | \hat{g} | 0^{B} 1^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{3}} t_{I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A} 0^{B} | \hat{g} | 0^{I} 0^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{3}} t_{I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A} 0^{B} | \hat{g} | 1^{I} 1^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{1}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{3}} t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_2,I_2)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_2,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{B_2,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_2,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{B_2,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 1^I 0^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_2,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 0^I 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_2,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{B_2,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{B_2,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{1}_{\beta}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_2,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{1}_{\beta}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_2,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 1^I 0^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{1}_{\beta}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_2,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 0^I 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_2,I_2} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_2,I_3)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{B_2,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 1^I 0^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_2,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 0^I 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\beta}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\beta}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\beta}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\beta}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ | A_0 \rangle \langle B_1$$

$$\begin{split} &+ \frac{-1}{2} \sum_{I} \langle 0^{A} 0^{I} | \hat{g} | 0^{B} 1^{I} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{3} | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{B_{2}} t_{I_{3}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A} 0^{I} | \hat{g} | 0^{B} 1^{I} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{3} | \hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} | I_{0} \rangle t_{B_{2}} t_{I_{3}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A} 0^{B} | \hat{g} | 1^{I} 0^{I} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{3} | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | I_{0} \rangle t_{B_{2}} t_{I_{3}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A} 0^{B} | \hat{g} | 0^{I} 1^{I} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{3} | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{B_{2}} t_{I_{3}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_3,I_2)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{B_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{B_3,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 1^I 0^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_3,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 0^I 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_3} t_{I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{B_3} t_{I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_3} t_{I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 1^I 0^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{B_3} t_{I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 1^I 0^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_3} t_{I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 1^I 0^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_3} t_{I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 1^I 0^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_3,I_3)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{B_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{B_3,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 1^I 0^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_3,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 0^I 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ | A_0 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ | A_0 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ | A_0 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{3}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{B_{3}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{I_{3}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_2,I_2)\rangle = \\ &+\frac{-1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\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^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\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^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\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^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\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^A 0^B|\hat{g}|1^I 0^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\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^A 0^B|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\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^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\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^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2,I_2} \\ &+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2,I_2} \\ &+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2,I_2} \\ &+\frac{1}{2}\sum_{I}\langle 0^A 0^B|\hat{g}|0^I 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2,I_2} \\ &+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2,I_2} \\ &+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{A_1,B_2,I_2} \\ &+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2,I_{A_1,I_2}} \\ &+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_{B_2,I_{A_1,I_2}} \\ &+\frac{1}{2}\sum_{I}\langle 0^A 0^I|\hat{g}|0^B 1^I\rangle\langle A_1|\hat{0}^+_\alpha|A_9\rangle\langle B_2|\hat{0}^-_\alpha|B_{11}\rangle\langle I_2|\hat{0}^+_\alpha\hat{1}^-_\alpha|I_0\rangle t_$$

$$\begin{split} &+ \frac{-1}{2} \sum_{I} \langle 0^{A} 0^{I} | \hat{g} | 0^{B} 1^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{2} | \hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{2}} t_{I_{2}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A} 0^{B} | \hat{g} | 1^{I} 0^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{2} | \hat{0}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{2}} t_{I_{2}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A} 0^{B} | \hat{g} | 0^{I} 1^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{2} | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{2}} t_{I_{2}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})| \hat{H} | (A_1, B_2, I_3) \rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\beta}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_1} t_{B_2, I_3} \\ &+ \frac{-1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^B | \hat{g} | 1^I 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \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^A 0^B | \hat{g} | 0^I 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_1, B_2, I_3} \\ &+ \frac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_1, B_2, I_3} \\ &+ \frac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_1, B_2, I_3} \\ &+ \frac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_1, B_2, I_3} \\ &+ \frac{1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 1^I 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_1, B_2, I_3} \\ &+ \frac{1}{2} \sum_I \langle 0^A 0^B | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_1, B_2, I_3} \\ &+ \frac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_1, A_2, I_3} \\ &+ \frac{1}{2} \sum_I \langle 0^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9$$

$$+ \tfrac{1}{2} \sum_{I} \langle 0^A 0^B | \hat{g} | 0^I 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_1} t_{B_2} t_{I_3}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_3,I_2)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_1} t_{B_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\beta}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_1} t_{B_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0 \rangle t_{A_1} t_{B_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{1}_{\beta}^+ \hat{0}_{\alpha}^- |I_0 \rangle t_{A_1} t_{B_3,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}| 1^I 0^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_1} t_{B_3,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}| 0^I 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_1} t_{B_3,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \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^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \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^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \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^A 0^B |\hat{g}| 1^I 0^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \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^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \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^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \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^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{3},I_{3})\rangle = \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A_{0}I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\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^{A_{0}I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{3},I_{3}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A_{0}I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\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^{A_{0}I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{3},I_{3}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A_{0}B}|\hat{g}|1^{I}I^{O}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\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^{A_{0}B}|\hat{g}|0^{I}I^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\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^{A_{0}I}|\hat{g}|0^{B}I^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{3},I_{3}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A_{0}I}|\hat{g}|0^{B}I^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{3},I_{3}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A_{0}I}|\hat{g}|0^{B}I^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{3},I_{3}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A_{0}I|\hat{g}|0^{B}I^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{3},I_{3}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A_{0}I|\hat{g}|0^{B}I^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{3},I_{3}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A_{0}I|\hat{g}|0^{B}I^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{3},I_{3}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A_{0}I|\hat{g}$$

$$\langle (A_9, B_{11})|\hat{H}|(I_1,)\rangle =$$

$$\begin{split} & + \frac{-1}{2} \sum_{I} \langle 0^{A} 0^{I} | \hat{g} | 1^{B} 0^{I} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{I_{1}} \\ & + \frac{-1}{2} \sum_{I} \langle 0^{A} 0^{I} | \hat{g} | 1^{B} 0^{I} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{0}_{\beta}^{+} \hat{0}_{\beta}^{-} | I_{0} \rangle t_{I_{1}} \\ & + \frac{-1}{2} \sum_{I} \langle 0^{A} 1^{I} | \hat{g} | 1^{B} 1^{I} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{1}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | I_{0} \rangle t_{I_{1}} \\ & + \frac{-1}{2} \sum_{I} \langle 0^{A} 1^{I} | \hat{g} | 1^{B} 1^{I} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} | I_{0} \rangle t_{I_{1}} \\ & + \frac{1}{2} \sum_{I} \langle 0^{A} 1^{B} | \hat{g} | 0^{I} 0^{I} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{I_{1}} \\ & + \frac{1}{2} \sum_{I} \langle 0^{A} 1^{B} | \hat{g} | 1^{I} 1^{I} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{1}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | I_{0} \rangle t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_1,I_1)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}| 1^B 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_1,I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}| 1^B 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 |\hat{0}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{B_1,I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 1^I |\hat{g}| 1^B 1^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 |\hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{B_1,I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 1^I |\hat{g}| 1^B 1^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 |\hat{1}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{B_1,I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 1^B |\hat{g}| 0^I 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_1,I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 1^B |\hat{g}| 1^I 1^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_1,I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I |\hat{g}| 1^B 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 |\hat{0}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{B_1} t_{I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 1^I |\hat{g}| 1^B 1^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 |\hat{0}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{B_1} t_{I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 1^I |\hat{g}| 1^B 1^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 |\hat{0}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{B_1} t_{I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 1^I |\hat{g}| 1^B 1^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 |\hat{0}_{\beta}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_1} t_{I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 1^B |\hat{g}| 0^I 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 |\hat{0}_{\beta}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_1} t_{I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 1^B |\hat{g}| 0^I 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_1} t_{I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 1^B |\hat{g}| 0^I 0^I \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_1} t_{I_1} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},I_{1})\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle \langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle \langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{1},I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{1},I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle \langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},I_{1}} \end{split}$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},I_{1}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{I_{1}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{1}}t_{I_{1}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{I_{1}} \\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_1)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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^A 1^B | \hat{g} | 1^I 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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^I | \hat{g} | 1^B 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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} | 1^B 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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^B | \hat{g} | 0^I 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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^B | \hat{g} | 1^I 1^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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} | 1^B 0^I \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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^I | \hat{g} | 1^B 0^$$

$$\begin{split} & + \frac{-1}{2} \sum_{I} \langle 0^{A} 0^{I} | \hat{g} | 1^{B} 0^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{0}_{\beta}^{+} \hat{0}_{\beta}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{1}} t_{I_{1}} \\ & + \frac{-1}{2} \sum_{I} \langle 0^{A} 1^{I} | \hat{g} | 1^{B} 1^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{1}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{1}} t_{I_{1}} \\ & + \frac{-1}{2} \sum_{I} \langle 0^{A} 1^{I} | \hat{g} | 1^{B} 1^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{1}} t_{I_{1}} \\ & + \frac{1}{2} \sum_{I} \langle 0^{A} 1^{B} | \hat{g} | 0^{I} 0^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{1}} t_{I_{1}} \\ & + \frac{1}{2} \sum_{I} \langle 0^{A} 1^{B} | \hat{g} | 1^{I} 1^{I} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{1} | \hat{1}_{\alpha}^{+} \hat{1}_{\alpha}^{-} | I_{0} \rangle t_{A_{1}} t_{B_{1}} t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(I_{2},)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{I_{2}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{I_{2}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{I_{2}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{I_{2}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{I_{2}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{I_{2}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(I_{3},)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{I_{3}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{I_{3}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{I_{3}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{I_{3}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{I_{3}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{I_{3}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{1},I_{2})\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{1},I_{2}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{1},I_{2}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{1},I_{2}} \end{split}$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}|1^{B}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}|1^{B}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}|1^{B}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}|1^{B}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{1}}t_{I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{1}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{1}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{1}\rangle\langle A_{1}|\hat{0}_{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_1,I_3)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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} | 1^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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^I | \hat{g} | 1^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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} | 1^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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 1^B | \hat{g} | 1^I 0^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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 1^B | \hat{g} | 0^I 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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} | 1^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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} | 1^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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} | 1^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\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} | 1^B 1^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{B_1} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 1^B | \hat{g} | 1^I 0^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_1} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 1^B | \hat{g} | 1^I 0^I \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{B_1} t_{I_3} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},I_{2})\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},I_{2}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{1},I_{2}} \end{split}$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\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^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{1},I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\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^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\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^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\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^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\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^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\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^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\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^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\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^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{I_{2}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,I_3)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11} \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^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11} \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^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11} \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^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11} \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^A 1^B |\hat{g}| 1^I 0^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11} \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^A 1^B |\hat{g}| 0^I 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11} \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^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11} \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^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11} \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^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_3 |\hat{1}_{\beta}^+ \hat{0}_{\alpha}^- |I_0 \rangle t_{A_1} t_{I_3} \\ &+ \frac{-1}{2} \sum_I \langle 0^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_3 |\hat{1}_{\beta}^+ \hat{0}_{\alpha}^- |I_0 \rangle t_{A_1} t_{I_3} \\ &+ \frac{1}{2} \sum_I \langle 0^A 1^B |\hat{g}| 1^I 0^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11} \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^A 1^B |\hat{g}| 1^I 0^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11} \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^A 1^B |\hat{g}| 1^I 0^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_3 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_1} t_{I_3} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_2)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_2 |\hat{0}^+_{\alpha} \hat{1}^-_{\alpha}|I_0 \rangle t_{A_1} t_{B_1,I_2} \end{split}$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{1},I_{2}}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{1},I_{2}}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{B_{1},I_{2}}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{1}}t_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{1}}t_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{1}}t_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{1}}t_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{1}}t_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},B_{1}}t_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},A_{1},I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_3)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 0^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_3 |\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0 \rangle t_{A_1} t_{B_1,I_3} \\ &+ \frac{-1}{2} \sum_I \langle 0^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_3 |\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0 \rangle t_{A_1} t_{B_1,I_3} \\ &+ \frac{-1}{2} \sum_I \langle 0^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_3 |\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0 \rangle t_{A_1} t_{B_1,I_3} \end{split}$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{I}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{I}|\hat{1}_{\alpha}|B_{11}\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}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{I}|\hat{1}_{\alpha}^{-}|B_{11}\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}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{I}|\hat{1}_{\alpha}^{-}|B_{11}\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}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{I}|\hat{1}_{\alpha}^{-}|B_{11}\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^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{I}|\hat{1}_{\alpha}^{-}|B_{11}\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^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{I}|\hat{1}_{\alpha}^{-}|B_{11}\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^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{I}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{I}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},A_{1}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{I}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{I}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1},A_{1}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{I}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{I}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{1}}t_{A_{1},I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{I}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{I}|$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_1)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I |\hat{g}|0^B 0^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_1 |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0 \rangle t_{A_2} t_{B_2,I_1} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I |\hat{g}|0^B 0^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_1 |\hat{0}_{\beta}^+ \hat{0}_{\beta}^- |I_0 \rangle t_{A_2} t_{B_2,I_1} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 1^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_1 |\hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_2} t_{B_2,I_1} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 1^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_1 |\hat{1}_{\beta}^+ \hat{1}_{\beta}^- |I_0 \rangle t_{A_2} t_{B_2,I_1} \\ &+ \frac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}|0^I 0^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_1 |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0 \rangle t_{A_2} t_{B_2,I_1} \end{split}$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{2},I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{2},I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{2},I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{2},I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{2},I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{2}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{3},I_{1})\rangle = \\ &+ \frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3},I_{1}} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3},I_{1}} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3},I_{1}} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3},I_{1}} \\ &+ \frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3},I_{1}} \\ &+ \frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3},I_{1}} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}}t_{I_{1}} \end{split}$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{2},B_{3}}t_{I_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}}t_{I_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{2},B_{3}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{2},I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{2},I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{2},I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_1)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_3} t_{B_2,I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{0}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{A_3} t_{B_2,I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3} t_{B_2,I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{A_3} t_{B_2,I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 0^I 0^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_3} t_{B_2,I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 1^I 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3} t_{B_2,I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_3,B_2} t_{I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{0}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{A_3,B_2} t_{I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3,B_2} t_{I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\beta}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3,B_2} t_{I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3,B_2} t_{I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | B_1 \rangle \langle A_3 | A_3 \rangle \langle$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{3},B_{2}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3},B_{2}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3},B_{2}}t_{I_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_1)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_1 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3} t_{B_3,I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_1 | \hat{0}^+_{\beta} \hat{0}^-_{\beta} | I_0 \rangle t_{A_3} t_{B_3,I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_1 | \hat{1}^+_{\alpha} \hat{1}^-_{\alpha} | I_0 \rangle t_{A_3} t_{B_3,I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_1 | \hat{1}^+_{\beta} \hat{1}^-_{\beta} | I_0 \rangle t_{A_3} t_{B_3,I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 0^I 0^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_1 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3} t_{B_3,I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 1^I 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_1 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3} t_{B_3,I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 0^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_1 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3,B_3} t_{I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_1 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3,B_3} t_{I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_1 | \hat{1}^+_{\alpha} \hat{1}^-_{\alpha} | I_0 \rangle t_{A_3,B_3} t_{I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_1 | \hat{1}^+_{\alpha} \hat{1}^-_{\alpha} | I_0 \rangle t_{A_3,B_3} t_{I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 0^I 0^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_1 | \hat{1}^+_{\alpha} \hat{1}^-_{\alpha} | I_0 \rangle t_{A_3,B_3} t_{I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 0^I 0^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_1 | \hat{1}^+_{\alpha} \hat{1}^-_{\alpha} | I_0 \rangle t_{A_3,B_3} t_{I_1} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3},B_{3}}t_{I_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{3},I_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{3},I_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{3},I_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{3},I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{3},I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{1}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{1}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{3$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{5},B_{4},I_{1})\rangle = \\ &+ \frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{5}|\hat{1}_{\beta}^{+}|A_{9}\rangle\langle B_{4}|\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{5},B_{4}}t_{I_{1}} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{5}|\hat{1}_{\beta}^{+}|A_{9}\rangle\langle B_{4}|\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{5},B_{4}}t_{I_{1}} \\ &+ \frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{5}|\hat{1}_{\beta}^{+}|A_{9}\rangle\langle B_{4}|\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{5},B_{4}}t_{I_{1}} \\ &+ \frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{5}|\hat{1}_{\beta}^{+}|A_{9}\rangle\langle B_{4}|\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{5},B_{4}}t_{I_{1}} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{I}\rangle\langle A_{5}|\hat{1}_{\beta}^{+}|A_{9}\rangle\langle B_{4}|\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{5},B_{4}}t_{I_{1}} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{5}|\hat{1}_{\beta}^{+}|A_{9}\rangle\langle B_{4}|\hat{0}_{\beta}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{5},B_{4}}t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_2)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_2} t_{B_2,I_2} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\beta}^+ \hat{1}_{\beta}^- |I_0 \rangle t_{A_2} t_{B_2,I_2} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0 \rangle t_{A_2} t_{B_2,I_2} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{1}_{\beta}^+ \hat{0}_{\beta}^- |I_0 \rangle t_{A_2} t_{B_2,I_2} \end{split}$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}|I_{0}\rangle t_{A_{2}}t_{B_{2},I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{2},I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},A_{2}}t_{I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{2},I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{2},I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{2}}t_{I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_3)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_3 |\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0 \rangle t_{A_2} t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_3 |\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0 \rangle t_{A_2} t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_3 |\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0 \rangle t_{A_2} t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_3 |\hat{1}^+_{\beta}\hat{0}^-_{\beta}|I_0 \rangle t_{A_2} t_{B_2,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}|1^I 0^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_3 |\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0 \rangle t_{A_2} t_{B_2,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}|0^I 1^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_3 |\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0 \rangle t_{A_2} t_{B_2,I_3} \end{split}$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{2}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{2},I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{2},I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{2},I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{2}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{2}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_2)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_2} t_{B_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\beta}^+ \hat{1}_{\beta}^- |I_0 \rangle t_{A_2} t_{B_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0 \rangle t_{A_2} t_{B_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{1}_{\beta}^+ \hat{0}_{\beta}^- |I_0 \rangle t_{A_2} t_{B_3,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}|1^I 0^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_2} t_{B_3,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}|0^I 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_2} t_{B_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_2,B_3} t_{I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\beta}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_2,B_3} t_{I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\beta}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_2,B_3} t_{I_2} \end{split}$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}}t_{I_{2}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{2},B_{3}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{2},I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{2},I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{2},I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{2},I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_3)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_2} t_{B_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{A_2} t_{B_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_2} t_{B_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{A_2} t_{B_3,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 1^I 0^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_2} t_{B_3,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 0^I 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_2} t_{B_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\beta}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_2,B_3} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{A_2,B_3} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\beta}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_2,B_3} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{A_2,B_3} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{A_2,B_3} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_3 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{A_2,B_3} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} |$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{3}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{2},I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{2},I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{2},I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{2},I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{2},I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{B_{3}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_2)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3} t_{B_2,I_2} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{A_3} t_{B_2,I_2} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_3} t_{B_2,I_2} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{1}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{A_3} t_{B_2,I_2} \\ &+ \frac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}| 1^I 0^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3} t_{B_2,I_2} \\ &+ \frac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}| 0^I 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3} t_{B_2,I_2} \\ &+ \frac{1}{2} \sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3,B_2} t_{I_2} \\ &+ \frac{1}{2} \sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{A_3,B_2} t_{I_2} \\ &+ \frac{1}{2} \sum_I \langle 1^A 0^I |\hat{g}| 0^B 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{A_3,B_2} t_{I_2} \\ &+ \frac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}| 1^I 0^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\beta}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3,B_2} t_{I_2} \\ &+ \frac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}| 1^I 0^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3,B_2} t_{I_2} \\ &+ \frac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}| 1^I 0^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3,B_2} t_{I_2} \\ &+ \frac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}| 1^I 0^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^-$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{2}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{2}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{2}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{2}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{2}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_3)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3} t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_2,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{1}^+_\beta \hat{0}^-_\beta | I_0 \rangle t_{A_3} t_{B_2,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_2,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_2,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3,B_2} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3,B_2} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3,B_2} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3,B_2} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3,B_2} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3,B_2} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_2 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{2}}t_{A_{3},I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\langle A_{3}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_2)\rangle = \\ &+\frac{-1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|0^B1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_3}t_{B_3,I_2} \\ &+\frac{-1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|0^B1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0\rangle t_{A_3}t_{B_3,I_2} \\ &+\frac{-1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|0^B1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle t_{A_3}t_{B_3,I_2} \\ &+\frac{-1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|0^B1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle t_{A_3}t_{B_3,I_2} \\ &+\frac{1}{2}\sum_{I}\langle 1^A0^B|\hat{g}|1^I0^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_3}t_{B_3,I_2} \\ &+\frac{1}{2}\sum_{I}\langle 1^A0^B|\hat{g}|0^I1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_3}t_{B_3,I_2} \\ &+\frac{1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|0^B1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_3,B_3}t_{I_2} \\ &+\frac{1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|0^B1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_3,B_3}t_{I_2} \\ &+\frac{1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|0^B1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle t_{A_3,B_3}t_{I_2} \\ &+\frac{1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|0^B1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{B_3}t_{A_3,I_2} \\ &+\frac{1}{2}\sum_{I}\langle 1^A0^I|\hat{g}|0^B1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{B_3}t_{A_3,I_2} \\ &+\frac$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{3},I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{3},I_{2}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{2}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{2}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{2}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{$$

 $\langle (A_9, B_{11})|\hat{H}|(A_3, B_3, I_3)\rangle =$ $+ \tfrac{-1}{2} \sum \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_3 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_3,I_3}$ $+\frac{-1}{2}\sum^{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3},I_{3}}$ $+ \frac{-1}{2} \sum_{}^{I} \langle 1^{A} 0^{I} | \hat{g} | 0^{B} 1^{I} \rangle \langle A_{3} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{3} | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | I_{0} \rangle t_{A_{3}} t_{B_{3},I_{3}}$ $+\frac{-1}{2}\sum^{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3},I_{3}}$ $+\frac{1}{2}\sum\nolimits^{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3},I_{3}}$ $+\frac{1}{2}\sum^{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3},I_{3}}$ $+ \frac{-1}{2} \sum \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_3 | \hat{0}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3,B_3} t_{I_3}$ $+\frac{-1}{2}\sum^{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{3},B_{3}}t_{I_{3}}$ $+ \frac{-1}{2} \sum_{}^{'} \langle 1^A 0^I | \hat{g} | 0^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_3 | \hat{0}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{1}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3,B_3} t_{I_3}$ $+\frac{-1}{2}\sum^{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{3},B_{3}}t_{I_{3}}$ $+\frac{1}{2}\sum\nolimits^{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{3}|\hat{1}^{+}_{\alpha}|A_{9}\rangle\langle B_{3}|\hat{0}^{-}_{\alpha}|B_{11}\rangle\langle I_{3}|\hat{0}^{+}_{\alpha}\hat{1}^{-}_{\alpha}|I_{0}\rangle t_{A_{3},B_{3}}t_{I_{3}}$ $+\frac{1}{2}\sum^{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3},B_{3}}t_{I_{3}}$ $+\frac{-1}{2}\sum^{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{3},I_{3}}$ $+\frac{-1}{2}\sum^{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{3},I_{3}}$ $+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{3},I_{3}}$ $+ \frac{-1}{2} \sum_{}^{1} \langle 1^{A} 0^{I} | \hat{g} | 0^{B} 1^{I} \rangle \langle A_{3} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{3} | \hat{1}_{\beta}^{+} \hat{0}_{\beta}^{-} | I_{0} \rangle t_{B_{3}} t_{A_{3},I_{3}}$ $+\frac{1}{2}\sum^{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{3},I_{3}}$ $+\frac{1}{2}\sum^{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{3}}t_{A_{3},I_{3}}$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{3}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_2)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_5|\hat{1}^+_{\beta}|A_9\rangle \langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle \langle I_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0\rangle t_{A_5,B_4}t_{I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_5|\hat{1}^+_{\beta}|A_9\rangle \langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle \langle I_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle t_{A_5,B_4}t_{I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}|1^I 0^I \rangle \langle A_5|\hat{1}^+_{\beta}|A_9\rangle \langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle \langle I_2|\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0\rangle t_{A_5,B_4}t_{I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}|0^I 1^I \rangle \langle A_5|\hat{1}^+_{\beta}|A_9\rangle \langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle \langle I_2|\hat{1}^+_{\beta}\hat{0}^-_{\beta}|I_0\rangle t_{A_5,B_4}t_{I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_5|\hat{1}^+_{\beta}|A_9\rangle \langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle \langle I_2|\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0\rangle t_{A_5,B_4}t_{I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_5|\hat{1}^+_{\beta}|A_9\rangle \langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle \langle I_2|\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0\rangle t_{A_5,B_4}t_{I_2} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_3)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_3 |\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0 \rangle t_{A_5,B_4} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_3 |\hat{1}^+_{\beta}\hat{0}^-_{\beta}|I_0 \rangle t_{A_5,B_4} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}|1^I 0^I \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_3 |\hat{0}^+_{\beta}\hat{1}^-_{\beta}|I_0 \rangle t_{A_5,B_4} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}|0^I 1^I \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_3 |\hat{1}^+_{\beta}\hat{0}^-_{\beta}|I_0 \rangle t_{A_5,B_4} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_3 |\hat{0}^+_{\alpha}\hat{1}^-_{\alpha}|I_0 \rangle t_{A_5,B_4} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|0^B 1^I \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_3 |\hat{1}^+_{\alpha}\hat{0}^-_{\alpha}|I_0 \rangle t_{A_5,B_4} t_{I_3} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},I_{1})\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{2},I_{1}} \end{split}$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},I_{1}} \\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{2},I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},I_{1}} \\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{1}} \\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{1}} \\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{1}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1,I_1)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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 1^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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 1^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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 1^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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 1^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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 1^A 1^B | \hat{g} | 1^I 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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 1^A 1^B | \hat{g} | 1^B 0^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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 1^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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 1^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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 1^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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 1^A 1^B | \hat{g} | 1^I 1^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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 1^A 1^B | \hat{g} | 1^B 0^I \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \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 1^A 0^I | \hat{g} | 1^B$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}|A_{2}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{1}|\hat{1}_{\alpha}^{+}|A_{2}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_1)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_3,I_1} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{0}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{A_3,I_1} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3,I_1} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{A_3,I_1} \\ &+ \frac{1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_3,I_1} \\ &+ \frac{1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 1^I 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_3,I_1} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_3} t_{I_1} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I | \hat{g} | 1^B 0^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{0}_{\alpha}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{A_3} t_{I_1} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3} t_{I_1} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 1^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{A_3} t_{I_1} \\ &+ \frac{1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3} t_{I_1} \\ &+ \frac{1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3} t_{I_1} \\ &+ \frac{1}{2} \sum_I \langle 1^A 1^B | \hat{g} | 0^I 0^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_1 | \hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_1,I_1)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|1^B 0^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_1 |\hat{0}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0 \rangle t_{A_3} t_{B_1,I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|1^B 0^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_1 |\hat{0}_{\beta}^+ \hat{0}_{\beta}^- |I_0 \rangle t_{A_3} t_{B_1,I_1} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 1^I |\hat{g}|1^B 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_1 |\hat{1}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_3} t_{B_1,I_1} \end{split}$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}|B_{11}\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 1^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|1^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|1^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{I}|\hat{g}|1^{B}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},I_{2})\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},I_{2}} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{2},I_{2}} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},I_{2}} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{2},I_{2}} \\ &+ \frac{1}{2} \sum_{I} \langle 1^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},I_{2}} \end{split}$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},I_{2}} \\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{2}} \\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{2}} \\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{2}} \\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{2}} \\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{2}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},I_{3})\rangle = \\ &+ \frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},I_{3}} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{2},I_{3}} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},I_{3}} \\ &+ \frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{2},I_{3}} \\ &+ \frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},I_{3}} \\ &+ \frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},I_{3}} \\ &+ \frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{2},I_{3}} \\ &+ \frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{3}} \\ &+ \frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{3}} \\ &+ \frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{3}} \\ &+ \frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{3}} \\ &+ \frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2}}t_{I_{3}} \\ &+ \frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1,I_2)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|1^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0 \rangle t_{A_2} t_{B_1,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|1^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{0}_{\beta}^+ \hat{1}_{\beta}^- |I_0 \rangle t_{A_2} t_{B_1,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|1^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0 \rangle t_{A_2} t_{B_1,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}|1^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_2 |\hat{1}_{\beta}^+ \hat{0}_{\beta}^- |I_0 \rangle t_{A_2} t_{B_1,I_2} \end{split}$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|1^{B}1^{B}1^{I}\rangle\langle A_{2}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1,I_3)\rangle = \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I |\hat{g}|1^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_3 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0\rangle t_{A_2} t_{B_1,I_3} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I |\hat{g}|1^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_3 |\hat{0}_{\beta}^+ \hat{1}_{\beta}^- |I_0\rangle t_{A_2} t_{B_1,I_3} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I |\hat{g}|1^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_3 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0\rangle t_{A_2} t_{B_1,I_3} \\ &+ \frac{-1}{2} \sum_I \langle 1^A 0^I |\hat{g}|1^B 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_3 |\hat{1}_{\beta}^+ \hat{0}_{\beta}^- |I_0\rangle t_{A_2} t_{B_1,I_3} \\ &+ \frac{1}{2} \sum_I \langle 1^A 1^B |\hat{g}|1^I 0^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_3 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- |I_0\rangle t_{A_2} t_{B_1,I_3} \\ &+ \frac{1}{2} \sum_I \langle 1^A 1^B |\hat{g}|0^I 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_3 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0\rangle t_{A_2} t_{B_1,I_3} \\ &+ \frac{1}{2} \sum_I \langle 1^A 1^B |\hat{g}|0^I 1^I \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_3 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- |I_0\rangle t_{A_2} t_{B_1,I_3} \end{split}$$

$$\begin{split} &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{1}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{2},B_{1}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{1}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{2},B_{1}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{1}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{1}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{2},B_{1}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{1}}t_{A_{2},I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{B_{1}}t_{A_{2},I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_2)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{A_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{1}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{A_3,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^B | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^B | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3} t_{I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\beta}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3} t_{I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 | \hat{0}_{\beta}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3} t_{I_2} \end{split}$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{I_{2}}\\ &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{3}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{3}}t_{I_{2}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_3)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{0}^+_{\alpha} \hat{1}^-_{\alpha} | I_0 \rangle t_{A_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{0}^+_{\beta} \hat{1}^-_{\beta} | I_0 \rangle t_{A_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{1}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{1}^+_{\beta} \hat{0}^-_{\beta} | I_0 \rangle t_{A_3,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^B | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{0}^+_{\alpha} \hat{1}^-_{\alpha} | I_0 \rangle t_{A_3,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^B | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{0}^+_{\alpha} \hat{1}^-_{\alpha} | I_0 \rangle t_{A_3,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{0}^+_{\beta} \hat{1}^-_{\beta} | I_0 \rangle t_{A_3} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{0}^+_{\beta} \hat{1}^-_{\beta} | I_0 \rangle t_{A_3} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{0}^+_{\beta} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3} t_{I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{0}^+_{\beta} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^B | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^B | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{0}^+_{\alpha} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_3} t_{I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^B | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 | \hat{1}^-_{\alpha} | B_{11} \rangle \langle I_3 | \hat{1$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_1,I_2)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3} t_{B_1,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\beta}^+ \hat{1}_{\beta}^- | I_0 \rangle t_{A_3} t_{B_1,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{1}_{\alpha}^+ \hat{0}_{\alpha}^- | I_0 \rangle t_{A_3} t_{B_1,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{1}_{\beta}^+ \hat{0}_{\beta}^- | I_0 \rangle t_{A_3} t_{B_1,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^B |\hat{g}| 1^I 0^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3} t_{B_1,I_2} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^B |\hat{g}| 0^I 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3} t_{B_1,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3,B_1,I_2} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I |\hat{g}| 1^B 1^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_2 |\hat{0}_{\alpha}^+ \hat{1}_{\alpha}^- | I_0 \rangle t_{A_3,B_1,I_2} \end{split}$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{1}}t_{A_{3},I_{2}}\\ &+\frac{1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_1,I_3)\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_1 | \hat{1}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_1 | \hat{1}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\beta \hat{1}^-_\beta | I_0 \rangle t_{A_3} t_{B_1,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_1 | \hat{1}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{1}^+_\alpha \hat{0}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_1 | \hat{1}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^B | \hat{g} | 1^I 0^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_1 | \hat{1}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1,I_3} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^B | \hat{g} | 0^I 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_1 | \hat{1}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{0}^+_\alpha \hat{1}^-_\alpha | I_0 \rangle t_{A_3} t_{B_1,I_3} \\ &+ \frac{-1}{2} \sum_{I} \langle 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_1 | \hat{1}^-_\alpha | B_{11} \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 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_1 | \hat{1}^-_\alpha | B_{11} \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 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_1 | \hat{1}^-_\alpha | B_{11} \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 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_1 | \hat{1}^-_\alpha | B_{11} \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 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_1 | \hat{1}^-_\alpha | B_{11} \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 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_1 | \hat{1}^-_\alpha | B_{11} \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 1^A 0^I | \hat{g} | 1^B 1^I \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_1 | \hat{1}^-_\alpha | B_{11} \rangle \langle I_3 | \hat{1}^+_\alpha | A_9 \rangle \langle B_1 |$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\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 1^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{3}|\hat{1}_{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{4},I_{5})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{B}|\hat{g}|1^{I}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{4}|\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{5}|\hat{0}_{\beta}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{B_{4},I_{5}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{B}|\hat{g}|0^{I}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{4}|\hat{0}_{\beta}^{-}|B_{11}\rangle \langle I_{5}|\hat{1}_{\beta}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{B_{4},I_{5}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_4,I_5)\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}| 1^I 0^I \rangle \langle A_1 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_4 |\hat{0}_{\beta}^-|B_{11}\rangle \langle I_5 |\hat{0}_{\beta}^+ \hat{1}_{\alpha}^-|I_0\rangle t_{A_1} t_{B_4,I_5} \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}| 0^I 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_4 |\hat{0}_{\beta}^-|B_{11}\rangle \langle I_5 |\hat{1}_{\beta}^+ \hat{0}_{\alpha}^-|I_0\rangle t_{A_1} t_{B_4,I_5} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_4,I_5)\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}|1^I 0^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_5 |\hat{0}^+_{\beta} \hat{1}^-_{\alpha}|I_0 \rangle t_{A_2} t_{B_4,I_5} \end{split}$$

$$+ \tfrac{1}{2} \sum_{I} \langle 1^A 0^B | \hat{g} | 0^I 1^I \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle B_4 | \hat{0}^-_{\beta} | B_{11} \rangle \langle I_5 | \hat{1}^+_{\beta} \hat{0}^-_{\alpha} | I_0 \rangle t_{A_2} t_{B_4, I_5}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_4,I_5)\rangle = \\ &+ \tfrac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}| 1^I 0^I \rangle \langle A_3 |\hat{1}^+_\alpha |A_9\rangle \langle B_4 |\hat{0}^-_\beta |B_{11}\rangle \langle I_5 |\hat{0}^+_\beta \hat{1}^-_\alpha |I_0\rangle t_{A_3} t_{B_4,I_5} \\ &+ \tfrac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}| 0^I 1^I \rangle \langle A_3 |\hat{1}^+_\alpha |A_9\rangle \langle B_4 |\hat{0}^-_\beta |B_{11}\rangle \langle I_5 |\hat{1}^+_\beta \hat{0}^-_\alpha |I_0\rangle t_{A_3} t_{B_4,I_5} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{6},B_{15},I_{1})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle \langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle \langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle \langle I_{1}|\hat{0}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{1}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|1^{I}1^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle \langle I_{1}|\hat{1}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}0^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle \langle I_{1}|\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{1}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}1^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle \langle I_{1}|\hat{1}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{1}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{6},B_{15},I_{2})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle \langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{2}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle \langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{2}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle \langle I_{2}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{2}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle \langle I_{2}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{2}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle \langle I_{2}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{2}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle \langle I_{2}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{2}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{6},B_{15},I_{3})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle \langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{3}} \\ &+ \frac{1}{2} \sum_{I} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle \langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{3}} \end{split}$$

$$\begin{split} &+\frac{-1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle\langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle\langle I_{3}|\hat{0}_{\beta}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{3}}\\ &+\frac{-1}{2}\sum_{I}\langle 0^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle\langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle\langle I_{3}|\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle\langle I_{3}|\hat{0}_{\alpha}^{+}\hat{1}_{\alpha}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{3}}\\ &+\frac{1}{2}\sum_{I}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{I}\rangle\langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle\langle I_{3}|\hat{1}_{\alpha}^{+}\hat{0}_{\alpha}^{-}|I_{0}\rangle t_{A_{6},B_{15}}t_{I_{3}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_2,I_{12})\rangle = \\ &+ \frac{1}{2} \sum_I \langle 0^A 0^B |\hat{g}| 1^A 0^I \rangle \langle A_{10}| \hat{1}^+_\beta \hat{0}^-_\beta |A_9\rangle \langle B_2| \hat{0}^-_\alpha |B_{11}\rangle \langle I_{12}| \hat{0}^+_\alpha |I_0\rangle t_{B_2} t_{A_{10},I_{12}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_{10}, B_3, I_{12})\rangle =$$

$$+\frac{1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}| 1^A 0^I \rangle \langle A_{10}| \hat{1}^+_\beta \hat{0}^-_\beta |A_9\rangle \langle B_3| \hat{0}^-_\alpha |B_{11}\rangle \langle I_{12}| \hat{0}^+_\alpha |I_0\rangle t_{B_3} t_{A_{10}, I_{12}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},I_{12})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 0^A 1^B |\hat{g}| 1^A 0^I \rangle \langle A_{10}|\hat{1}^+_\beta \hat{0}^-_\beta |A_9\rangle \langle B_0|\hat{1}^-_\alpha |B_{11}\rangle \langle I_{12}|\hat{0}^+_\alpha |I_0\rangle t_{A_{10},I_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_1,I_{12})\rangle = \\ &+ \frac{1}{2} \sum_I \langle 0^A 1^B |\hat{g}| 1^A 0^I \rangle \langle A_{10}| \hat{1}^+_\beta \hat{0}^-_\beta |A_9\rangle \langle B_1| \hat{1}^-_\alpha |B_{11}\rangle \langle I_{12}| \hat{0}^+_\alpha |I_0\rangle t_{B_1} t_{A_{10},I_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_2,I_{11})\rangle = \\ &+ \tfrac{1}{2} \sum_I \langle 0^A 0^B |\hat{g}| 1^A 1^I \rangle \langle A_{10}| \hat{1}^+_\beta \hat{0}^-_\beta |A_9\rangle \langle B_2| \hat{0}^-_\alpha |B_{11}\rangle \langle I_{11}| \hat{1}^+_\alpha |I_0\rangle t_{B_2} t_{A_{10},I_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_3,I_{11})\rangle = \\ &+ \tfrac{1}{2} \sum_I \langle 0^A 0^B |\hat{g}| 1^A 1^I \rangle \langle A_{10}| \hat{1}^+_\beta \hat{0}^-_\beta |A_9\rangle \langle B_3| \hat{0}^-_\alpha |B_{11}\rangle \langle I_{11}| \hat{1}^+_\alpha |I_0\rangle t_{B_3} t_{A_{10},I_{11}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_{10}, I_{11})\rangle =$$

$$+\frac{1}{2} \sum_{I} \langle 0^A 1^B |\hat{g}| 1^A 1^I \rangle \langle A_{10}| \hat{1}^+_{\beta} \hat{0}^-_{\beta} |A_9\rangle \langle B_0| \hat{1}^-_{\alpha} |B_{11}\rangle \langle I_{11}| \hat{1}^+_{\alpha} |I_0\rangle t_{A_{10}, I_{11}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_{10},B_1,I_{11})\rangle = \\ &+ \frac{1}{2} \sum_I \langle 0^A 1^B |\hat{g}| 1^A 1^I \rangle \langle A_{10}| \hat{1}^+_\beta \hat{0}^-_\beta |A_9\rangle \langle B_1| \hat{1}^-_\alpha |B_{11}\rangle \langle I_{11}| \hat{1}^+_\alpha |I_0\rangle t_{B_1} t_{A_{10},I_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_2,I_4)\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}| 1^I 0^I \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_4 |\hat{0}^+_{\alpha} \hat{1}^-_{\beta}|I_0 \rangle t_{B_2} t_{A_5,I_4} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 0^B |\hat{g}| 0^I 1^I \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_4 |\hat{1}^+_{\alpha} \hat{0}^-_{\beta}|I_0 \rangle t_{B_2} t_{A_5,I_4} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_3,I_4)\rangle = \\ &+ \tfrac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}| 1^I 0^I \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_4 |\hat{0}^+_{\alpha} \hat{1}^-_{\beta}|I_0 \rangle t_{B_3} t_{A_5,I_4} \\ &+ \tfrac{1}{2} \sum_I \langle 1^A 0^B |\hat{g}| 0^I 1^I \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_4 |\hat{1}^+_{\alpha} \hat{0}^-_{\beta}|I_0 \rangle t_{B_3} t_{A_5,I_4} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{5},I_{4})\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 1^{A}1^{B}|\hat{g}|1^{I}0^{I}\rangle \langle A_{5}|\hat{1}_{\beta}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{4}|\hat{0}_{\alpha}^{+}\hat{1}_{\beta}^{-}|I_{0}\rangle t_{A_{5},I_{4}} \\ &+ \frac{1}{2} \sum_{I} \langle 1^{A}1^{B}|\hat{g}|0^{I}1^{I}\rangle \langle A_{5}|\hat{1}_{\beta}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{4}|\hat{1}_{\alpha}^{+}\hat{0}_{\beta}^{-}|I_{0}\rangle t_{A_{5},I_{4}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_1,I_4)\rangle = \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^B |\hat{g}| 1^I 0^I \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_4 |\hat{0}^+_{\alpha} \hat{1}^-_{\beta}|I_0 \rangle t_{B_1} t_{A_5,I_4} \\ &+ \frac{1}{2} \sum_{I} \langle 1^A 1^B |\hat{g}| 0^I 1^I \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_4 |\hat{1}^+_{\alpha} \hat{0}^-_{\beta}|I_0 \rangle t_{B_1} t_{A_5,I_4} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_6,B_2,I_{15})\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}|0^I 0^I \rangle \langle A_6 |\hat{0}_{\beta}^- |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{15} |\hat{0}_{\alpha}^+ \hat{0}_{\beta}^+ |I_0 \rangle t_{B_2} t_{A_6,I_{15}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}|1^I 1^I \rangle \langle A_6 |\hat{0}_{\beta}^- |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{15} |\hat{1}_{\alpha}^+ \hat{1}_{\beta}^+ |I_0 \rangle t_{B_2} t_{A_6,I_{15}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_6,B_3,I_{15})\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}|0^I 0^I \rangle \langle A_6 |\hat{0}_{\beta}^- |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{15} |\hat{0}_{\alpha}^+ \hat{0}_{\beta}^+ |I_0 \rangle t_{B_3} t_{A_6,I_{15}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^A 0^B |\hat{g}|1^I 1^I \rangle \langle A_6 |\hat{0}_{\beta}^- |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{15} |\hat{1}_{\alpha}^+ \hat{1}_{\beta}^+ |I_0 \rangle t_{B_3} t_{A_6,I_{15}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{6},I_{15})\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|0^{I}0^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{15}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}|I_{0}\rangle t_{A_{6},I_{15}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A}1^{B}|\hat{g}|1^{I}1^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{15}|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}^{+}|I_{0}\rangle t_{A_{6},I_{15}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{6},B_{1},I_{15})\rangle = \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A} 1^{B}|\hat{g}|0^{I} 0^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{15}|\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{+}|I_{0}\rangle t_{B_{1}}t_{A_{6},I_{15}} \\ &+ \frac{-1}{2} \sum_{I} \langle 0^{A} 1^{B}|\hat{g}|1^{I} 1^{I}\rangle \langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{15}|\hat{1}_{\alpha}^{+}\hat{1}_{\beta}^{+}|I_{0}\rangle t_{B_{1}}t_{A_{6},I_{15}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_{12},K_9,L_9)\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_{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_9,B_{11}} t_{I_{12},K_9} t_{J_{12},L_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_{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_9,B_{11}} t_{I_{12},K_9} 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_{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_9,B_{11}} t_{I_{12},L_9} t_{J_{12},K_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_{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_9,B_{11}} t_{I_{12},L_9} t_{J_{12},K_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_{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_9,I_{12}} t_{B_{11},K_9} 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_{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_9,I_{12}} t_{B_{11},K_9} t_{J_{12},K_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_{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_9,I_{12}} t_{B_{11},L_9} t_{J_{12},K_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_{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_9,I_{12}} t_{B_{11},L_9} t_{J_{12},K_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_{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_9,I_{12}} t_{B_{11},L_9} t_{J_{12},K_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{L} \langle 0^I 0^J |\hat{g}|0^L 0^K \rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{9}}t_{I_{12},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{9}}t_{I_{12},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{9}}t_{I_{12},K_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{9}}t_{I_{12},K_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{14},K_{7},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{14},L_{7}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{14},L_{7}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{14},K_{7}}\\ &+ \frac{1}{48}\sum_{L}\sum_{L}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{14},K_{9},L_{7})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle \langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle \langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}} t_{I_{12},K_{9}} t_{J_{14},L_{7}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle \langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle \langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{12}} t_{B_{11},K_{9}} t_{J_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_{12},K_9,L_{10})\rangle = \\ &+ \frac{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_{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_9,B_{11}}t_{I_{12},K_9}t_{J_{12},L_{10}} \\ &+ \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_{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_9,B_{11}}t_{I_{12},K_9}t_{J_{12},L_{10}} \\ &+ \frac{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_{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_9,B_{11}}t_{I_{12},L_{10}}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_{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_9,B_{11}}t_{I_{12},L_{10}}t_{J_{12},K_9} \\ &+ \frac{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_{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_9,I_{12}}t_{B_{11},K_9}t_{J_{12},L_{10}} \\ &+ \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_{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_9,I_{12}}t_{B_{11},K_9}t_{J_{12},L_{10}} \\ &+ \frac{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_{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_9,I_{12}}t_{B_{11},L_{10}}t_{J_{12},K_9} \\ &+ \frac{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_{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_9,I_{12}}t_{B_{11},L_{10}}t_{J_{12},K_9} \\ &+ \frac{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_{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_9,I_{12}}t_{B_{11},L_{10}}t_{J_{12},K_9} \\ &+ \frac{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_{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_9,I_{12}}t_{B_{11},K_9}t_{I_{12},L_{10}} \\ &+ \frac{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_{12}|\hat{0}_\alpha^+|J_0\rangle$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 0^{K} 1^{L} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},J_{12}} t_{B_{11},L_{10}} t_{I_{12},K_{9}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{L} 0^{K} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},J_{12}} t_{B_{11},L_{10}} t_{I_{12},K_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{14},K_{7},L_{8})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{14}|\hat{0}^{+}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{14},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{14}|\hat{0}^{+}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{14},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{14}|\hat{0}^{+}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{14},K_{7}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{14}|\hat{0}^{+}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{14},K_{9},L_{8})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},K_{9}}t_{J_{14},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{9}}t_{J_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{12}, K_{10}, L_9)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, K_{10}} t_{J_{12}, L_9} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \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_9, B_{11}} t_{I_{12}, K_{10}} t_{J_{12}, L_9} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \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_9, B_{11}} t_{I_{12}, L_9} t_{J_{12}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_9, B_{11}} t_{I_{12}, L_9} t_{J_{12}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_9, I_{12}} t_{B_{11}, K_{10}} t_{J_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_9, I_{12}} t_{B_{11}, K_{10}} t_{J_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_9, I_{12}} t_{B_{11}, L_9} t_{J_{12}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_9, I_{12}} t_{B_{11}, K_{10}} t_{I_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 0^I$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{14},K_{8},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{14},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{14},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{14},K_{8}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{14},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{14},K_{10},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},K_{10}}t_{J_{14},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{10}}t_{J_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11}) | \hat{H} | (A_9, B_{11}, I_{12}, J_{12}, K_{10}, L_{10}) \rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 1^K 1^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_9, B_{11}} t_{I_{12}, K_{10}} t_{J_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 1^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_{10} | \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, K_{10}} t_{J_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 1^K 1^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_9, B_{11}} t_{I_{12}, L_{10}} t_{J_{12}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 1^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_{10} | \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, L_{10}} t_{J_{12}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 1^K 1^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_9, I_{12}} t_{B_{11}, K_{10}} t_{J_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_{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_9, I_{12}} t_{B_{11}, K_{10}} t_{J_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_{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_9, I_{12}} t_{B_{11}, L_{10}} t_{J_{12}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_{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_9, I_{12}} t_{B_{11}, K_{10}} t_{I_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{14},K_{8},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{14},L_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{14},L_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{14},K_{8}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{14},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_{14},K_{10},L_8)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J |\hat{g}| 1^K 1^L \rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{14}|\hat{0}_{\beta}^+ |J_0\rangle \langle K_{10}|\hat{1}_{\alpha}^- |K_0\rangle \langle L_8|\hat{1}_{\beta}^- |L_0\rangle t_{A_9,B_{11}} t_{I_{12},K_{10}} t_{J_{14},L_8} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}| 1^K 1^L \rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{14}|\hat{0}_{\beta}^+ |J_0\rangle \langle K_{10}|\hat{1}_{\alpha}^- |K_0\rangle \langle L_8|\hat{1}_{\beta}^- |L_0\rangle t_{A_9,I_{12}} t_{B_{11},K_{10}} t_{J_{14},L_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_{11},K_9,L_9)\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,B_{11}}t_{I_{12},K_9}t_{J_{11},L_9} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,B_{11}}t_{I_{12},K_9}t_{J_{11},L_9} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,B_{11}}t_{I_{12},K_9}t_{J_{11},K_9} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^I 1^J|\hat{g}|0^K 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_9,B_{11}}t_{I_{12},L_9}t_{J_{11},K_9} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^I 1^J|\hat{g}|0^K 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_9,I_{12}}t_{B_{11},K_9}t_{J_{11},L_9} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^I 1^J|\hat{g}|0^K 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_9,I_{12}}t_{B_{11},K_9}t_{J_{11},L_9} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^I 1^J|\hat{g}|0^K 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_9,I_{12}}t_{B_{11},L_9}t_{J_{11},K_9} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^I 1^J|\hat{g}|0^K 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_9,I_{11}}t_{B_{11},K_9}t_{I_{12},L_9} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^I 1^J|\hat{g}|0^K 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_9,J_{11}}t_{B_{11},K_9}t_{I_{12},L_9} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J|\hat{g}|0^K 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_9,J_{11}}t_{B_{11},L_9}t_{I_{12},K_9} \\ &$$

$$\langle (A_9, B_{11}) | \hat{H} | (A_9, B_{11}, I_{14}, J_{13}, K_7, L_7) \rangle =$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J | \hat{g} | 0^K 0^L \rangle \langle I_{14} | \hat{0}^+_{\beta} | I_0 \rangle \langle J_{13} | \hat{1}^+_{\beta} | J_0 \rangle \langle K_7 | \hat{0}^-_{\beta} | K_0 \rangle \langle L_7 | \hat{0}^-_{\beta} | L_0 \rangle t_{A_9, B_{11}} t_{I_{14}, K_7} t_{J_{13}, L_7}$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 0^{L} 0^{K} \rangle \langle I_{14} | \hat{0}_{\beta}^{+} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle \langle L_{7} | \hat{0}_{\beta}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},K_{7}} t_{J_{13},L_{7}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 0^{K} 0^{L} \rangle \langle I_{14} | \hat{0}_{\beta}^{+} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle \langle L_{7} | \hat{0}_{\beta}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},L_{7}} t_{J_{13},K_{7}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 0^{L} 0^{K} \rangle \langle I_{14} | \hat{0}_{\beta}^{+} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle \langle L_{7} | \hat{0}_{\beta}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},L_{7}} t_{J_{13},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{13},K_{9},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},K_{9}}t_{J_{13},L_{7}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{9}}t_{J_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{11}, K_9, L_{10})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, K_9} t_{J_{11}, L_{10}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, K_9} t_{J_{11}, L_{10}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, L_{10}} t_{J_{11}, K_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, L_{10}} t_{J_{11}, K_9} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{12}} t_{B_{11}, K_9} t_{J_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{12}} t_{B_{11}, K_9} t_{J_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{12}} t_{B_{11}, L_{10}} t_{J_{11}, K_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_9, I_{12}} t_{B_{11}, L_{10}} t_{J_{11}, K_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_{12} | \hat$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_{13},K_7,L_8)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J |\hat{g}|0^K 1^L \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0 \rangle \langle K_7|\hat{0}^-_{\beta}|K_0 \rangle \langle L_8|\hat{1}^-_{\beta}|L_0 \rangle t_{A_9,B_{11}} t_{I_{14},K_7} t_{J_{13},L_8} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}|1^L 0^K \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0 \rangle \langle K_7|\hat{0}^-_{\beta}|K_0 \rangle \langle L_8|\hat{1}^-_{\beta}|L_0 \rangle t_{A_9,B_{11}} t_{I_{14},K_7} t_{J_{13},L_8} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}|0^K 1^L \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0 \rangle \langle K_7|\hat{0}^-_{\beta}|K_0 \rangle \langle L_8|\hat{1}^-_{\beta}|L_0 \rangle t_{A_9,B_{11}} t_{I_{14},L_8} t_{J_{13},K_7} \end{split}$$

$$+ \tfrac{1}{48} \sum_{I} \sum_{K} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 1^{L} 0^{K} \rangle \langle I_{14} | \hat{0}_{\beta}^{+} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle \langle L_{8} | \hat{1}_{\beta}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},L_{8}} t_{J_{13},K_{7}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_{13},K_9,L_8)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J |\hat{g}|0^K 1^L \rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{13}|\hat{1}_{\beta}^+ |J_0\rangle \langle K_9|\hat{0}_{\alpha}^- |K_0\rangle \langle L_8|\hat{1}_{\beta}^- |L_0\rangle t_{A_9,B_{11}} t_{I_{12},K_9} t_{J_{13},L_8} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}|0^K 1^L \rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{13}|\hat{1}_{\beta}^+ |J_0\rangle \langle K_9|\hat{0}_{\alpha}^- |K_0\rangle \langle L_8|\hat{1}_{\beta}^- |L_0\rangle t_{A_9,I_{12}} t_{B_{11},K_9} t_{J_{13},L_8} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{11}, K_{10}, L_9)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, K_{10}} t_{J_{11}, L_9} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J | \hat{g} | 0^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_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, K_{10}} t_{J_{11}, L_9} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, L_9} t_{J_{11}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J | \hat{g} | 0^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_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, L_9} t_{J_{11}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J | \hat{g} | 0^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_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_9, I_{12}} t_{B_{11}, K_{10}} t_{J_{11}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J | \hat{g} | 0^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_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_9, I_{12}} t_{B_{11}, K_{10}} t_{J_{11}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J | \hat{g} | 0^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_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_9, I_{12}} t_{B_{11}, L_9} t_{J_{11}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J | \hat{g} | 0^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_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_9, J_{11}} t_{B_{11}, K_{10}} t_{I_{12}, L_9} \\ &+ \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$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{13},K_{8},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{13},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{13},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{13},K_{8}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{13},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{13},K_{10},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},K_{10}}t_{J_{13},L_{7}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{10}}t_{J_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{11}, K_{10}, L_{10})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J |\hat{g}| 1^K 1^L \rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^+ |J_0\rangle \langle K_{10}|\hat{1}_{\alpha}^- |K_0\rangle \langle L_{10}|\hat{1}_{\alpha}^- |L_0\rangle t_{A_9,B_{11}} t_{I_{12},K_{10}} t_{J_{11},L_{10}} t_{J_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{13},K_{8},L_{8})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{13},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{13},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{13},K_{8}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{13},K_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{13}, K_{10}, L_8)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},K_{10}}t_{J_{13},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{10}}t_{J_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}t_{I_{11},K_9}t_{J_{12},L_9} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\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_9,B_{11}}t_{I_{11},L_9}t_{J_{12},K_9} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,B_{11}}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_9,B_{11}}t_{B_{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_9,I_{11}}t_{B_{11},K_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_9,I_{11}}t_{B_{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_9,I_{11}}t_{B_{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_9,I_{11}}t_{B_{11},L_9}t_{I_{11},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_9,I_{11}}t_{B_{11},K_9}t_{I_{11},L_9} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{L}\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}|$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{14},K_{7},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{14}|\hat{0}^{+}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{14},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{14}|\hat{0}^{+}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{14},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{14}|\hat{0}^{+}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{14},K_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{14}|\hat{0}^{+}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{14},K_{7}} \end{split}$$

 $+\frac{1}{48}\sum_{r}^{I}\sum_{r}^{J}\sum_{r}^{K}\sum_{r}^{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{9}}t_{I_{11},K_{9}}$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{14},K_{9},L_{7})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{9}}t_{J_{14},L_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{12}, K_9, L_{10})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^J | \hat{g} | 0^K 1^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_9, B_{11}} t_{I_{11}, K_9} t_{J_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^I 0^J | \hat{g} | 1^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_{10} | \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{11}, K_9} t_{J_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^I 0^J | \hat{g} | 0^K 1^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_9, B_{11}} t_{I_{11}, L_{10}} t_{J_{12}, K_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^I 0^J | \hat{g} | 1^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_{10} | \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{11}, L_{10}} t_{J_{12}, K_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^I 0^J | \hat{g} | 0^K 1^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_9, I_{11}} t_{B_{11}, K_9} 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_{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_9, I_{11}} t_{B_{11}, K_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 1^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_9, I_{11}} t_{B_{11}, L_{10}} t_{J_{12}, K_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J | \hat{g} | 0^K 1^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_9, I_{11}} t_{B_{11}, L_{10}} t_{I_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J | \hat{g} | 0$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{14},K_{7},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{14},L_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{14},L_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{14},K_{7}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{14},K_{9},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{9}}t_{J_{14},L_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11}) | \hat{H} | (A_9, B_{11}, I_{11}, J_{12}, K_{10}, L_9) \rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^J | \hat{g} | 1^K 0^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_9, B_{11}} t_{I_{11}, K_{10}} t_{J_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_{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_9, B_{11}} t_{I_{11}, K_{10}} t_{J_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_{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_9, B_{11}} t_{I_{11}, L_9} t_{J_{12}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_{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_9, B_{11}} t_{I_{11}, L_9} t_{J_{12}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_{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_9, I_{11}} t_{B_{11}, K_{10}} 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 1^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_9, I_{11}} t_{B_{11}, K_{10}} t_{J_{12}, K_{10}} \\ &+ \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_{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_9, I_{11}} t_{B_{11}, L_9} t_{J_{12}, K_{10}} \\ &+ \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_{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_9, I_{11}} t_{B_{11}, K_{10}} t_{I_{11}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J | \hat{g} | 0^L 1$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{14},K_{8},L_{7})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{14}|\hat{0}^{+}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{14},L_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{14}|\hat{0}^{+}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{14},L_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{14}|\hat{0}^{+}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{14},K_{8}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{14}|\hat{0}^{+}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{14},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{14},K_{10},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{10}}t_{J_{14},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{10}}t_{J_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_{12},K_{10},L_{10})\rangle = \\ &+ \frac{1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J |\hat{g}|1^K 1^L \rangle \langle I_{11}|\hat{1}_\alpha^+ |I_0\rangle \langle J_{12}|\hat{0}_\alpha^+ |J_0\rangle \langle K_{10}|\hat{1}_\alpha^- |K_0\rangle \langle L_{10}|\hat{1}_\alpha^- |L_0\rangle t_{A_9,B_{11}} t_{I_{11},K_{10}} t_{J_{12},L_{10}} \end{split}$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\left\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{10}}t_{J_{12},L_{10}}t_{I_{12},K_{10},K_{10}}t_{I_{12},K_{10}}t_{I_{12},K_{10}}t_{I_{12}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{14},K_{8},L_{8})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{14},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{14},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{14},K_{8}} \end{split}$$

 $+\frac{1}{48}\sum_{r}^{I}\sum_{r}^{J}\sum_{r}^{K}\sum_{r}^{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{14},K_{8}}$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{14},K_{10},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{10}}t_{J_{14},L_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{10}}t_{J_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_{11},K_9,L_9)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J |\hat{g}|0^K 0^L \rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^+ |J_0\rangle \langle K_9|\hat{0}_{\alpha}^- |K_0\rangle \langle L_9|\hat{0}_{\alpha}^- |L_0\rangle t_{A_9,B_{11}} t_{I_{11},K_9} t_{J_{11},L_9} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 1^J |\hat{g}|0^L 0^K \rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^+ |J_0\rangle \langle K_9|\hat{0}_{\alpha}^- |K_0\rangle \langle L_9|\hat{0}_{\alpha}^- |L_0\rangle t_{A_9,B_{11}} t_{I_{11},K_9} t_{J_{11},L_9} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 1^J |\hat{g}|0^K 0^L \rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^+ |J_0\rangle \langle K_9|\hat{0}_{\alpha}^- |K_0\rangle \langle L_9|\hat{0}_{\alpha}^- |L_0\rangle t_{A_9,B_{11}} t_{I_{11},L_9} t_{J_{11},K_9} \end{split}$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\left\langle 1^{I}1^{J}|\hat{g}|0^{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_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{9}}t_{J_{11},K_{9}}\right.\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\left\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{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_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{11},L_{9}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\left\langle 1^{I}1^{J}|\hat{g}|0^{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_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{11},L_{9}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\left\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{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_{9},I_{11}}t_{B_{11},L_{9}}t_{J_{11},K_{9}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\left\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{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_{9},J_{11}}t_{B_{11},K_{9}}t_{I_{11},L_{9}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\left\langle 1^{I}1^{J}|\hat{g}|0^{K}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_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},K_{9}}t_{I_{11},L_{9}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\left\langle 1^{I}1^{J}|\hat{g}|0^{K}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_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},L_{9}}t_{I_{11},K_{9}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\left\langle 1^{I}1^{J}|\hat{g}|0^{K}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_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},L_{9}}t_{I_{11},K_{9}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{L}\sum_{L}\sum_{L}\left\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{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_{9},J_{11}}t_{B_{11},L_{9}}t_{I_{11},K_{9}}\right.\\ &+\frac{1}{48}\sum_{L}\sum_{L$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_{13}, K_7, L_7)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{13},L_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{13},L_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{13},K_{7}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{13},K_{7}}\\ \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{13}, K_9, L_7)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{9}}t_{J_{13},L_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{13},L_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{11}, K_9, L_{10})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{9}}t_{J_{11},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{9}}t_{J_{11},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{10}}t_{J_{11},K_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{10}}t_{J_{11},K_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{11},L_{10}} \end{split}$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\left\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\right\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_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{11},L_{10}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\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_{9},I_{11}}t_{B_{11},L_{10}}t_{J_{11},K_{9}}\right.\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\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_{9},I_{11}}t_{B_{11},L_{10}}t_{J_{11},K_{9}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\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_{9},J_{11}}t_{B_{11},K_{9}}t_{I_{11},L_{10}}\right.\\ &+\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_{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_{9},J_{11}}t_{B_{11},L_{10}}t_{I_{11},K_{9}}\right.\\ &+\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_{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_{9},J_{11}}t_{B_{11},L_{10}}t_{I_{11},K_{9}}\right.\\ &+\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_{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_{9},J_{11}}t_{B_{11},L_{10}}t_{I_{11},K_{9}}\right.\\ &+\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_{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_{9},J_{11}}t_{B_{11},L_{10}}t_{I_{11},K_{9}}\right.$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_{13}, K_7, L_8)\rangle =$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{13},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{13},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{13},K_{7}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{13},K_{7}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{13}, K_9, L_8)\rangle =$
$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{9}}t_{J_{13},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{13},L_{8}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{11}, K_{10}, L_9)\rangle =$

 $+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{10}}t_{J_{11},L_{9}}\\+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{10}}t_{J_{11},L_{9}}$ $+\frac{-1}{48}\sum_{I}^{I}\sum_{J}^{J}\sum_{K}^{K}\sum_{L}^{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{9}}t_{J_{11},K_{10}}$ $\sum_{i=1}^{I} \sum_{j=1}^{K} \sum_{i=1}^{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{L} 1^{K} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{11},L_{9}} t_{J_{11},K_{10}}$ $+\frac{-1}{48}\sum^{I}\sum^{J}\sum^{K}\sum^{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{10}}t_{J_{11},L_{9}}$ $+\frac{1}{48}\sum_{I}^{I}\sum_{J}^{J}\sum_{L}^{K}\sum_{I}^{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{10}}t_{J_{11},L_{9}}$ $+\frac{1}{48}\sum_{i}^{I}\sum_{j}^{K}\sum_{i}^{K}\sum_{j}^{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{9}}t_{J_{11},K_{10}}$

$$\begin{split} &+ \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_{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_{9},I_{11}} t_{B_{11},L_{9}} t_{J_{11},K_{10}} \\ &+ \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_{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_{9},J_{11}} t_{B_{11},K_{10}} t_{I_{11},L_{9}} \\ &+ \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_{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_{9},J_{11}} t_{B_{11},L_{9}} t_{I_{11},K_{10}} \\ &+ \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_{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_{9},J_{11}} t_{B_{11},L_{9}} t_{I_{11},K_{10}} \\ &+ \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_{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_{9},J_{11}} t_{B_{11},L_{9}} t_{I_{11},K_{10}} \\ &+ \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_{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_{9},J_{11}} t_{B_{11},L_{9}} t_{I_{11},K_{10}} \\ &+ \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_{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_{9},J_{11}} t_{B_{11},L_{9}} t_{I_{11},K_{10}} \\ &+ \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_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_{13}, K_8, L_7)\rangle =$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{13},L_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{13},L_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{13},K_{8}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{13},K_{8}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{13}, K_{10}, L_7)\rangle =$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{10}}t_{J_{13},L_{7}}\\+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{10}}t_{J_{13},L_{7}}\\$$

 $\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_{11},K_{10},L_{10})\rangle =$

$$\begin{split} &+\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_{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_{9},B_{11}}t_{I_{11},K_{10}}t_{J_{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_{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_{9},B_{11}}t_{I_{11},K_{10}}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_{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_{9},B_{11}}t_{I_{11},L_{10}}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_{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_{9},B_{11}}t_{I_{11},L_{10}}t_{J_{11},K_{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_{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_{9},I_{11}}t_{B_{11},K_{10}}t_{J_{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_{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_{9},I_{11}}t_{B_{11},K_{10}}t_{J_{11},K_{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_{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_{9},I_{11}}t_{B_{11},L_{10}}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_{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_{9},I_{11}}t_{B_{11},L_{10}}t_{J_{11},K_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{L}\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_{9},I_{11}}t_{B_{11},L_{10}}t_{J_{11},K_{10}}\\ &+\frac{1}{48}\sum_{L}\sum_{L}\sum_{L$$

$$\begin{split} & + \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 1^{L} 1^{K} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},J_{11}} t_{B_{11},K_{10}} t_{I_{11},L_{10}} \\ & + \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 1^{K} 1^{L} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},J_{11}} t_{B_{11},L_{10}} t_{I_{11},K_{10}} \\ & + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 1^{L} 1^{K} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},J_{11}} t_{B_{11},L_{10}} t_{I_{11},K_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{13},K_{8},L_{8})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{13},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{13},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{13},K_{8}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{13}|\hat{1}^{+}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{13},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_{13},K_{10},L_8)\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle\langle L_8|\hat{1}^-_{\beta}|L_0\rangle t_{A_9,B_{11}}t_{I_{11},K_{10}}t_{J_{13},L_8}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|1^K1^L\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle\langle L_8|\hat{1}^-_{\beta}|L_0\rangle t_{A_9,I_{11}}t_{B_{11},K_{10}}t_{J_{13},L_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{14},K_{7},L_{9})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},L_{9}}t_{J_{14},K_{7}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},L_{9}}t_{J_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_{14},K_8,L_9)\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle\langle K_8|\hat{1}_{\beta}^{-}|K_0\rangle\langle L_9|\hat{0}_{\alpha}^{-}|L_0\rangle t_{A_9,B_{11}}t_{I_{12},L_9}t_{J_{14},K_8}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^I0^J|\hat{g}|0^L1^K\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_0\rangle\langle K_8|\hat{1}_{\beta}^{-}|K_0\rangle\langle L_9|\hat{0}_{\alpha}^{-}|L_0\rangle t_{A_9,I_{12}}t_{B_{11},L_9}t_{J_{14},K_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{14}, K_7, L_{10})\rangle =$$

$$+\frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}| 1^L 0^K \rangle \langle I_{12}|\hat{0}^+_{\alpha} |I_0\rangle \langle J_{14}|\hat{0}^+_{\beta} |J_0\rangle \langle K_7|\hat{0}^-_{\beta} |K_0\rangle \langle L_{10}|\hat{1}^-_{\alpha} |L_0\rangle t_{A_9, B_{11}} t_{I_{12}, L_{10}} t_{J_{14}, K_7}$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{L} 0^{K} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9}, I_{12}} t_{B_{11}, L_{10}} t_{J_{14}, K_{7}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{14}, K_8, L_{10})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},L_{10}}t_{J_{14},K_{8}}\\+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},L_{10}}t_{J_{14},K_{8}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{13}, K_7, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},L_{9}}t_{J_{13},K_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},L_{9}}t_{J_{13},K_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{13}, K_8, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},L_{9}}t_{J_{13},K_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},L_{9}}t_{J_{13},K_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{13}, K_7, L_{10})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},L_{10}}t_{J_{13},K_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},L_{10}}t_{J_{13},K_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{13}, K_8, L_{10})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},L_{10}}t_{J_{13},K_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},L_{10}}t_{J_{13},K_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{14}, K_7, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{9}}t_{J_{14},K_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{9}}t_{J_{14},K_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{14}, K_8, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{9}}t_{J_{14},K_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{9}}t_{J_{14},K_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{14}, K_7, L_{10})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{10}}t_{J_{14},K_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{10}}t_{J_{14},K_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{14}, K_8, L_{10})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{10}}t_{J_{14},K_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{10}}t_{J_{14},K_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{13}, K_7, L_9)\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{9}}t_{J_{13},K_{7}}\\+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{9}}t_{J_{13},K_{7}}\\$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{13}, K_8, L_9)\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{9}}t_{J_{13},K_{8}}\\+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{9}}t_{J_{13},K_{8}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{13},K_{7},L_{10})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{10}}t_{J_{13},K_{7}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{10}}t_{J_{13},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{13},K_{8},L_{10})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{10}}t_{J_{13},K_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{10}}t_{J_{13},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_9,K_{12},L_9)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_{12},J_9} t_{K_{12},L_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_{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_9,B_{11}} t_{I_{12},J_9} 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_{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_9,B_{11}} t_{I_{12},L_9} 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_{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_9,B_{11}} t_{I_{12},L_9} t_{J_9,K_{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_{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_9,I_{12}} t_{B_{11},J_9} 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_{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_9,I_{12}} t_{B_{11},J_9} 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_{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_9,I_{12}} t_{B_{11},L_9} t_{J_9,K_{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_{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_9,K_{12}} t_{B_{11},J_9} t_{I_{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_{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}^- |$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{7},K_{14},L_{7})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{14},L_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{14},L_{7}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{7},K_{14}} \end{split}$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 0^{L} 0^{K} \rangle \langle I_{14} | \hat{0}^{+}_{\beta} | I_{0} \rangle \langle J_{7} | \hat{0}^{-}_{\beta} | J_{0} \rangle \langle K_{14} | \hat{0}^{+}_{\beta} | K_{0} \rangle \langle L_{7} | \hat{0}^{-}_{\beta} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},L_{7}} t_{J_{7},K_{14}} dt_{A_{9},B_{11}} t_{A_{14},L_{7}} t_{A_{14},L_{14}} dt_{A_{14},L_{14},L_{14}} dt_{A_{14},L_{14},L_{14},L_{14}} dt_{A_{14},L_{1$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{9},K_{14},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{9}}t_{K_{14},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{9}}t_{K_{14},L_{7}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_9, K_{12}, L_{10})\rangle =$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{9}}t_{K_{12},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{9}}t_{K_{12},L_{10}} \end{split}$$
 $+\frac{1}{48}\sum^{I}\sum^{J}\sum^{K}\sum^{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},L_{10}}t_{J_{9},K_{12}}$ $+\frac{-1}{48}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},L_{10}}t_{J_{9},K_{12}}t_{I_{12},L_{10},L_{10}}t_{I_{12},L_{10},L_{10}}t_{I_{12},L_{10},L_{10},L_{10}}t_{I_{12},L_{10},L_{10},L_{10}}t_{I_{12},L_{10},L_{10},L_{10},L_{10},L_{10}}t_{I_{12},L_{10},L_$ $+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\sum_{I}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{9}}t_{K_{12},L_{10}}$ $\sum_{L}^{T} \sum_{L}^{T} \sum_{L}^{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{L} 0^{K} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9}, I_{12}} t_{B_{11}, J_{9}} t_{K_{12}, L_{10}}$ $\sum_{L}^{J} \sum_{L}^{K} \sum_{l}^{L} \langle 0^{I} 0^{K} | \hat{g} | 0^{J} 1^{L} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9}, I_{12}} t_{B_{11}, L_{10}} t_{J_{9}, K_{12}}$ $\sum_{K}\sum_{\alpha}^{K}\sum_{\alpha}^{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},L_{10}}t_{J_{9},K_{12}}$ $+ \frac{1}{48} \sum_{I} \sum_{K} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 0^{J} 1^{L} \rangle \langle I_{12} | \hat{0}^{+}_{\alpha} | I_{0} \rangle \langle J_{9} | \hat{0}^{-}_{\alpha} | J_{0} \rangle \langle K_{12} | \hat{0}^{+}_{\alpha} | K_{0} \rangle \langle L_{10} | \hat{1}^{-}_{\alpha} | L_{0} \rangle t_{A_{9}, K_{12}} t_{B_{11}, J_{9}} t_{I_{12}, L_{10}}$ $+\frac{-1}{48}\sum_{I}^{I}\sum_{J}^{I}\sum_{L}^{K}\sum_{I}^{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{12},L_{10}}$ $+\frac{-1}{48}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},L_{10}}t_{I_{12},J_{9}}$ $+\frac{1}{48}\sum_{i}^{I}\sum_{j}^{J}\sum_{k}^{K}\sum_{i}^{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},L_{10}}t_{I_{12},J_{9}}$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_7, K_{14}, L_8)\rangle =$ $+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{14},L_{8}}\\ +\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{14},L_{8}}$ $+\frac{1}{48}\sum^{I}\sum^{J}\sum^{K}\sum^{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{7},K_{14}}$ $+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{I}\sum_{A}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{7},K_{14}}$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_9,K_{14},L_8)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^K |\hat{g}|0^J 1^L \rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_9|\hat{0}_{\alpha}^- |J_0\rangle \langle K_{14}|\hat{0}_{\beta}^+ |K_0\rangle \langle L_8|\hat{1}_{\beta}^- |L_0\rangle t_{A_9,B_{11}} t_{I_{12},J_9} t_{K_{14},L_8} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^K |\hat{g}|0^J 1^L \rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_9|\hat{0}_{\alpha}^- |J_0\rangle \langle K_{14}|\hat{0}_{\beta}^+ |K_0\rangle \langle L_8|\hat{1}_{\beta}^- |L_0\rangle t_{A_9,I_{12}} t_{B_{11},J_9} t_{K_{14},L_8} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{10}, K_{12}, L_9)\rangle = \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^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_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, J_{10}} t_{K_{12}, L_9} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_{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_9, B_{11}} t_{I_{12}, J_{10}} t_{K_{12}, L_9} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 0^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_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, L_9} t_{J_{10}, K_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 0^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_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, L_9} t_{J_{10}, K_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 0^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_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_9, I_{12}} t_{B_{11}, J_{10}} t_{K_{12}, L_9} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 0^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_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_9, I_{12}} t_{B_{11}, J_{10}} t_{K_{12}, L_9} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^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_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_9, I_{12}} t_{B_{11}, L_9} t_{J_{10}, K_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^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_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_9 | \hat{0}_{\alpha}^- | L_0 \rangle t_{A_9, K_{12}} t_{B_{11}, J_{10}} t_{I_{12}, L_9} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^K | \hat{g} |$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{8},K_{14},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{14},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{14},L_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{8},K_{14}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{8},K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{10}, K_{14}, L_7)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}}t_{K_{14},L_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_{10},K_{12},L_{10})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K} \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_9,B_{11}}t_{I_{12},J_{10}}t_{K_{12},L_{10}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\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_9,B_{11}}t_{I_{12},J_{10}}t_{K_{12},L_{10}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\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_9,B_{11}}t_{I_{12},L_{10}}t_{J_{10},K_{12}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\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_9,B_{11}}t_{I_{12},L_{10}}t_{J_{10},K_{12}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\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_9,I_{12}}t_{B_{11},J_{10}}t_{K_{12},L_{10}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\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_9,I_{12}}t_{B_{11},J_{10}}t_{K_{12},L_{10}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\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_9,I_{12}}t_{B_{11},L_{10}}t_{J_{10},K_{12}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\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_9,I_{12}}t_{B_{11},L_{10}}t_{J_{10},K_{12}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\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_9,K_{12}}t_{B_{11},J_{10}}t_{I_{12},L_{10}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\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_{1$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{8},K_{14},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{14},L_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{14},L_{8}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{8},K_{14}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{10},K_{14},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}}t_{K_{14},L_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_9, K_{11}, L_9)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, J_9} t_{K_{11}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, J_9} t_{K_{11}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, L_9} t_{J_9, K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, L_9} t_{J_9, K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{12}} t_{B_{11}, J_9} t_{K_{11}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{12}} t_{B_{11}, J_9} t_{K_{11}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{12}} t_{B_{11}, L_9} t_{J_9, K_{11}} \\ &+ \frac{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_9, K_{11}} t_{B_{11}, J_9} t_{I_{12}, L_9} \\ &+ \frac{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}^+$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{7},K_{13},L_{7})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{13}|\hat{1}^{+}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{13},L_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{13}|\hat{1}^{+}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{13},L_{7}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{13}|\hat{1}^{+}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{7},K_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{13}|\hat{1}^{+}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{9},K_{13},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{9}}t_{K_{13},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{9}}t_{K_{13},L_{7}} \end{split}$$

$$\langle (A_9, B_{11}) | \hat{H} | (A_9, B_{11}, I_{12}, J_9, K_{11}, L_{10}) \rangle =$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^K | \hat{g} | 0^J 1^L \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_{11} | \hat{1}_{\alpha}^+ | K_0 \rangle \langle L_{10} | \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, J_9} t_{K_{11}, L_{10}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 1^L 1^K \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_{11} | \hat{1}_{\alpha}^+ | K_0 \rangle \langle L_{10} | \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, J_9} t_{K_{11}, L_{10}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 1^L 1^K \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_{11} | \hat{1}_{\alpha}^+ | K_0 \rangle \langle L_{10} | \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, L_{10}} t_{J_9, K_{11}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 1^L 1^K \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_{11} | \hat{1}_{\alpha}^+ | K_0 \rangle \langle L_{10} | \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, L_{10}} t_{J_9, K_{11}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 0^J | \hat{g} | 1^L 1^K \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_{11} | \hat{1}_{\alpha}^+ | K_0 \rangle \langle L_{10} | \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9, I_{12}} t_{B_{11}, J_9} t_{K_{11}, L_{10}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J | \hat{g} | 1^L 1^K \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_{11} | \hat{1}_{\alpha}^+ | K_0 \rangle \langle L_{10} | \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9, I_{12}} t_{B_{11}, J_9} t_{K_{11}, L_{10}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J | \hat{g} | 1^L 1^K \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_{11} | \hat{1}_{\alpha}^+ | K_0 \rangle \langle L_{10} | \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9, I_{12}} t_{B_{11}, L_{10}} t_{J_9, K_{11}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J | \hat{g} | 1^L 1^K \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_{11} | \hat{1}_{\alpha}^+ | K_0 \rangle \langle L_{10} | \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9, K_{11}} t_{B_{11}, L_{10}} t_{J_{12}, L_{10}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J | \hat{g} | 1^L 1^K \rangle \langle I_{1$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{7},K_{13},L_{8})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{13}|\hat{1}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{13},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{13}|\hat{1}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{13},L_{8}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{13}|\hat{1}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{7},K_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{13}|\hat{1}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{9},K_{13},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{9}}t_{K_{13},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{9}}t_{K_{13},L_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{10}, K_{11}, L_9)\rangle =$$

$$+\frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^K |\hat{g}| 1^J 0^L \rangle \langle I_{12} |\hat{0}^+_{\alpha} | I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha} | J_0 \rangle \langle K_{11} |\hat{1}^+_{\alpha} | K_0 \rangle \langle L_9 |\hat{0}^-_{\alpha} | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, J_{10}} t_{K_{11}, L_9}$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\left\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\right\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\right\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\right\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\right\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\right\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}}t_{K_{11},L_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\left\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\right\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\right\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\right\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\right\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\right\rangle t_{A_{9},B_{11}}t_{I_{12},L_{9}}t_{J_{10},K_{11}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\left\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\right\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\right\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\right\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\right\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\right\rangle t_{A_{9},B_{11}}t_{I_{12},L_{9}}t_{J_{10},K_{11}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\left\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\right\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\right\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\right\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\right\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\right\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{11},L_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\left\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\right\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\right\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\right\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\right\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\right\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{11},L_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\left\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\right\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\right\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\right\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\right\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\right\rangle t_{A_{9},I_{12}}t_{B_{11},L_{9}}t_{J_{10},K_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\left\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\right\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\right\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\right\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\right\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\right\rangle t_{A_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{12},L_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\left\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\right\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\right\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\right\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\right\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\right\rangle t_{A_{9},K_{11}}t_{B_{11},L_{9}}t_{I_{12},J_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\left\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\right\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\right\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\right\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle \langle L_{9}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_8, K_{13}, L_7)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{13},L_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{13},L_{7}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{8},K_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{L}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{8},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{10}, K_{13}, L_7)\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}}t_{K_{13},L_{7}} + \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{13},L_{7}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{10}, K_{11}, L_{10})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}}t_{K_{11},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}}t_{K_{11},L_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},L_{10}}t_{J_{10},K_{11}} \end{split}$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{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_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},L_{10}}t_{J_{10},K_{11}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{11},L_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{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_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{11},L_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},L_{10}}t_{J_{10},K_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{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_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},L_{10}}t_{J_{10},K_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{12},L_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{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_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{12},L_{10}}\\ &+\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_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{12},J_{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_{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_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{12},J_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{L$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_8, K_{13}, L_8)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{13},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{13},L_{8}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{8},K_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{8},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{10}, K_{13}, L_8)\rangle =$$

$$+\frac{1}{10}\sum\sum\sum\sum\langle 0^I 1^K |\hat{g}|1^J 1^L \rangle \langle I_{12}|\hat{0}_2^+ |I_0\rangle \langle J_{10}|\hat{1}_2^- |J_0\rangle \langle K_{13}|\hat{1}_2^+ |K_0\rangle \langle L_8|\hat{1}_2^- |L_0\rangle \langle I_{12}|\hat{0}_2^+ |I_0\rangle \langle I_{12}|\hat{0}_2^+ |I_0\rangle \langle I_{13}|\hat{1}_2^+ |K_0\rangle \langle I_{13}|\hat{1}_2^+ |K_0\rangle \langle I_{13}|\hat{1}_2^- |I_0\rangle \langle I_{13}|\hat{1}_2^- |I_0\rangle \langle I_{13}|\hat{1}_2^+ |K_0\rangle \langle I_{13}|\hat{1}_2^- |I_0\rangle \langle I_1|\hat{1}_2^- |I_0\rangle \langle I_1|\hat{1}_2^$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}}t_{K_{13},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{13},L_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_9, K_{12}, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{9}}t_{K_{12},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{9}}t_{K_{12},L_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{9}}t_{J_{9},K_{12}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{9}}t_{J_{9},K_{12}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{12},L_{9}} \end{split}$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{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_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{12},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{9}}t_{J_{9},K_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{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_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{11},L_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{11},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{11},J_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},L_{9}}t_{I_{11},J_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{L}0^{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_{9},K_{12}}t_{B_{11},L_{9}}t_{I_{11},J_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{L}0^{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_{9},K_{12}}t_{B_{11},L_{9}}t_{I_{11},J_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{L}0^{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_{9},K_{12}}t_{B_{11},L_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{L}0^{K}\rangle\langle I_{11}|\hat{0}_{\alpha}^{+}|I_{11$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_7, K_{14}, L_7)\rangle =$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_9, K_{12}, L_{10})\rangle =$

 $+ \frac{1}{48} \sum \sum \sum \sum \langle 1^I 0^K | \hat{g} | 0^J 0^L \rangle \langle I_{13} | \hat{1}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle \langle K_{14} | \hat{0}^+_\beta | K_0 \rangle \langle L_7 | \hat{0}^-_\beta | L_0 \rangle t_{A_9,B_{11}} t_{I_{13},J_7} t_{K_{14},L_7} t_{A_9,B_{11}} t_{A_9,B_{11}}$ $+\frac{-1}{48}\sum_{I}^{I}\sum_{J}^{J}\sum_{K}^{K}\sum_{L}^{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{14},L_{7}}$ $+\frac{1}{48}\sum_{I}\sum_{L}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{7},K_{14}}$ $+\frac{-1}{48}\sum_{J}^{I}\sum_{J}^{K}\sum_{L}^{K}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{7},K_{14}}$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_9, K_{14}, L_7)\rangle =$
$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{9}}t_{K_{14},L_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{L}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{14},L_{7}} \end{split}$$

 $+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{9}}t_{K_{12},L_{10}}\\+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{9}}t_{K_{12},L_{10}}$ $+\frac{1}{48}\sum^{I}\sum^{J}\sum^{K}\sum^{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{11}|\hat{1}^{+}_{\alpha}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{10}|\hat{1}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{10}}t_{J_{9},K_{12}}$

 $+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 1^{L} 0^{K} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{11},L_{10}} t_{J_{9},K_{12}}$ $+\frac{-1}{48}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\sum_{I}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{12},L_{10}}$ $+\frac{1}{48}\sum_{I}\sum_{J}\sum_{L}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{12},L_{10}}$ $+ \frac{-1}{48} \sum_{i}^{I} \sum_{j}^{K} \sum_{k}^{L} \langle 1^{I} 0^{K} | \hat{g} | 0^{J} 1^{L} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9}, I_{11}} t_{B_{11}, L_{10}} t_{J_{9}, K_{12}}$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{10}}t_{J_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{11},L_{10}}t_{J_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{11},L_{10}}t_{J_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{11},L_{10}}t_{J_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{11},L_{10}}t_{J_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{11},L_{10}}t_{J_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{11},L_{10}}t_{J_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},J_{9}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},J_{9}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},J_{9}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},J_{9}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},J_{9}}t_{J_{11},L_{10}}t_{J_{11},J_{9}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},J_{9}}t_{J_{11},L_{10}}t_{J_{11},J_{9}}t_{J_{11},L_{10}}t_{J_{11},L_{10}}t_{J_{11},J_{9}}t_{J_{11},J_{10}}t_{J_{11},J_{10},J_{11},J_{10}}t_{J_{11},J_{10},J_{10},J_{10},J_{10},J_{10},J_{10},J_{10},J_{10},$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_7, K_{14}, L_8)\rangle =$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{14},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{14},L_{8}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{7},K_{14}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{7},K_{14}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_9, K_{14}, L_8)\rangle =$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{9}}t_{K_{14},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{14},L_{8}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{10}, K_{12}, L_9)\rangle =$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{10}}t_{K_{12},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{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_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{10}}t_{K_{12},L_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{9}}t_{J_{10},K_{12}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{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_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{9}}t_{J_{10},K_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{12},L_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{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_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{12},L_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{9}}t_{J_{10},K_{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_{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_{9},I_{11}}t_{B_{11},L_{9}}t_{J_{10},K_{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_{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_{9},I_{11}}t_{B_{11},L_{9}}t_{J_{10},K_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{L}\sum_{L}\langle 1^{I}0^{K}$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{L} 0^{K} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},K_{12}} t_{B_{11},J_{10}} t_{I_{11},L_{9}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},K_{12}} t_{B_{11},L_{9}} t_{I_{11},J_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{L} 0^{K} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},K_{12}} t_{B_{11},L_{9}} t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{8},K_{14},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{14},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{14},L_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{8},K_{14}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{L}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{10},K_{14},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{10}}t_{K_{14},L_{7}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_{10},K_{12},L_{10})\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_{12}| \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{10}| \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9,B_{11}} t_{I_{11},J_{10}} t_{K_{12},L_{10}} \\ &+ \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_{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_9,B_{11}} t_{I_{11},J_{10}} t_{K_{12},L_{10}} \\ &+ \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_{12}| \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{10}| \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9,B_{11}} t_{I_{11},L_{10}} t_{J_{10},K_{12}} \\ &+ \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_{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_9,B_{11}} t_{I_{11},L_{10}} t_{J_{10},K_{12}} \\ &+ \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_{12}| \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{10}| \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9,I_{11}} t_{B_{11},J_{10}} t_{K_{12},L_{10}} \\ &+ \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_{12}| \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{10}| \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9,I_{11}} t_{B_{11},J_{10}} t_{K_{12},L_{10}} \\ &+ \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_{12}| \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{10}| \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9,I_{11}} t_{B_{11},L_{10}} t_{J_{10},K_{12}} \\ &+ \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_{12}| \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{10}| \hat{1}_{\alpha}^- | L_0 \rangle t_{A_9,I_{11}} t_{B_{11},L_{10}} t_{J_{10},K_{12}} \\ &+ \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}|$$

$$+ \frac{1}{48} \sum_{I} \sum_{K} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 1^{L} 0^{K} \rangle \langle I_{11} | \hat{1}^{+}_{\alpha} | I_{0} \rangle \langle J_{10} | \hat{1}^{-}_{\alpha} | J_{0} \rangle \langle K_{12} | \hat{0}^{+}_{\alpha} | K_{0} \rangle \langle L_{10} | \hat{1}^{-}_{\alpha} | L_{0} \rangle t_{A_{9}, K_{12}} t_{B_{11}, L_{10}} t_{I_{11}, J_{10}} t_{I_{11}, J_{10}} t_{I_{11}, J_{10}} t_{I_{11}, I_{10}} t_{I_{11}, I_{10}, I_{10}, I_{10}} t_{I_{11}, I_{10}, I_{10}, I_{10}} t_{I_{11}, I_{10}, I_{10}, I_{10}, I_{10}} t_{I_{11}, I_{10}, I_{10}, I_{10}, I_{10}, I_{10}, I_{10}} t_{I_{11}, I_{10}, I_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{8},K_{14},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{14},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{14},L_{8}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{8},K_{14}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{14}|\hat{0}^{+}_{\beta}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{10},K_{14},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{10}}t_{K_{14},L_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_9,K_{11},L_9)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_{11},J_9} t_{K_{11},L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_{11},J_9} t_{K_{11},L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_{11},L_9} t_{J_9,K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_{11},L_9} t_{J_9,K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,I_{11}} t_{B_{11},J_9} t_{K_{11},L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,I_{11}} t_{B_{11},J_9} t_{K_{11},L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,I_{11}} t_{B_{11},L_9} t_{J_9,K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,I_{11}} t_{B_{11},L_9} t_{J_{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_9,K_{11}} t_{B_{11},L_9}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{7},K_{13},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{13},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{13},L_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{7},K_{13}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{9},K_{13},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{9}}t_{K_{13},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_9, K_{11}, L_{10})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^K | \hat{g} | 0^J 1^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_9, B_{11}} t_{I_{11}, J_9} t_{K_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^J | \hat{g} | 1^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_{10} | \hat{1}^-_{\alpha} | L_0 \rangle t_{A_9, B_{11}} t_{I_{11}, J_9} t_{K_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^K | \hat{g} | 0^J 1^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_9, B_{11}} t_{I_{11}, L_{10}} t_{J_9, K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^J | \hat{g} | 1^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_{10} | \hat{1}^-_{\alpha} | L_0 \rangle t_{A_9, B_{11}} t_{I_{11}, L_{10}} t_{J_9, K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^J | \hat{g} | 1^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_{10} | \hat{1}^-_{\alpha} | L_0 \rangle t_{A_9, I_{11}} t_{B_{11}, J_9} t_{K_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^J | \hat{g} | 1^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_{10} | \hat{1}^-_{\alpha} | L_0 \rangle t_{A_9, I_{11}} t_{B_{11}, J_9} t_{K_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^J | \hat{g} | 1^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_{10} | \hat{1}^-_{\alpha} | L_0 \rangle t_{A_9, I_{11}} t_{B_{11}, L_{10}} t_{J_9, K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_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_9, K_{11}} t_{B_{11}, L_{10}} t_{I_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J | \hat{g} | 1^L 1^K \rangle \langle I_{11} | \hat$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_7, K_{13}, L_8)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{13},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{13},L_{8}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{7},K_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{9},K_{13},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{9}}t_{K_{13},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{10}, K_{11}, L_9)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{11}, J_{10}} t_{K_{11}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{11}, J_{10}} t_{K_{11}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{11}, L_9} t_{J_{10}, K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{11}, L_9} t_{J_{10}, K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{11}} t_{B_{11}, J_{10}} t_{K_{11}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{11}} t_{B_{11}, J_{10}} t_{K_{11}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{11}} t_{B_{11}, L_9} t_{J_{10}, K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{11}} t_{B_{11}, L_9} 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_{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_9, K_{11}} t_{B_{11}, J_{10}} t$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{8},K_{13},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{13},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{13},L_{7}} \end{split}$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{8},K_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{8},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{10},K_{13},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{10}}t_{K_{13},L_{7}}t_{I_{11},J_{10},J_{10}}t_{I_{11},J_{10},J_{10}}t_{I_{11},J_{10},J_$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_{10},K_{11},L_{10})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_{11},J_{10}} t_{K_{11},L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_{11},J_{10}} t_{K_{11},L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_{11},L_{10}} t_{J_{10},K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_{11},L_{10}} t_{J_{10},K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,I_{11}} t_{B_{11},J_{10}} t_{K_{11},L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^K | \hat{g} | 1^J 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_9,I_{11}} t_{B_{11},J_{10}} t_{K_{11},L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,I_{11}} t_{B_{11},L_{10}} t_{J_{10},K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_9,I_{11}} t_{B_{11},J_{10}} t_{I_{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$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{8},K_{13},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{13},L_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{13},L_{8}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{8},K_{13}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{8},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{10},K_{13},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{10}}t_{K_{13},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_7,K_{14},L_9)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J |\hat{g}|0^L 0^K \rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_7|\hat{0}_{\beta}^- |J_0\rangle \langle K_{14}|\hat{0}_{\beta}^+ |K_0\rangle \langle L_9|\hat{0}_{\alpha}^- |L_0\rangle t_{A_9,B_{11}} t_{I_{12},L_9} t_{J_7,K_{14}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}|0^L 0^K \rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_7|\hat{0}_{\beta}^- |J_0\rangle \langle K_{14}|\hat{0}_{\beta}^+ |K_0\rangle \langle L_9|\hat{0}_{\alpha}^- |L_0\rangle t_{A_9,I_{12}} t_{B_{11},L_9} t_{J_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_8,K_{14},L_9)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}|0^L 0^K \rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_8|\hat{1}_{\beta}^- |J_0\rangle \langle K_{14}|\hat{0}_{\beta}^+ |K_0\rangle \langle L_9|\hat{0}_{\alpha}^- |L_0\rangle t_{A_9,B_{11}} t_{I_{12},L_9} t_{J_8,K_{14}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}|0^L 0^K \rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_8|\hat{1}_{\beta}^- |J_0\rangle \langle K_{14}|\hat{0}_{\beta}^+ |K_0\rangle \langle L_9|\hat{0}_{\alpha}^- |L_0\rangle t_{A_9,I_{12}} t_{B_{11},L_9} t_{J_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{7},K_{14},L_{10})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},L_{10}}t_{J_{7},K_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},L_{10}}t_{J_{7},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{8},K_{14},L_{10})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},L_{10}}t_{J_{8},K_{14}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},L_{10}}t_{J_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_7,K_{13},L_9)\rangle = \\ &+ \frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 0^I 0^J |\hat{g}|0^L 1^K \rangle \langle I_{12}|\hat{0}^+_\alpha |I_0\rangle \langle J_7|\hat{0}^-_\beta |J_0\rangle \langle K_{13}|\hat{1}^+_\beta |K_0\rangle \langle L_9|\hat{0}^-_\alpha |L_0\rangle t_{A_9,B_{11}} t_{I_{12},L_9} t_{J_7,K_{13}} \end{split}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 0^{L} 1^{K} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9}, I_{12}} t_{B_{11}, L_{9}} t_{J_{7}, K_{13}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_8, K_{13}, L_9)\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},L_{9}}t_{J_{8},K_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},L_{9}}t_{J_{8},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_7, K_{13}, L_{10})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{L} 1^{K} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{12},L_{10}} t_{J_{7},K_{13}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{L} 1^{K} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},I_{12}} t_{B_{11},L_{10}} t_{J_{7},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_8, K_{13}, L_{10})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 1^{L} 1^{K} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{8} | \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{12},L_{10}} t_{J_{8},K_{13}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 1^{L} 1^{K} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{8} | \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},I_{12}} t_{B_{11},L_{10}} t_{J_{8},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_7, K_{14}, L_9)\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{9}}t_{J_{7},K_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{9}}t_{J_{7},K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_8, K_{14}, L_9)\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{L} 0^{K} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{8} | \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{11},L_{9}} t_{J_{8},K_{14}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{L} 0^{K} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{8} | \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},I_{11}} t_{B_{11},L_{9}} t_{J_{8},K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_7, K_{14}, L_{10})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 1^{L} 0^{K} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{11},L_{10}} t_{J_{7},K_{14}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 1^{L} 0^{K} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},I_{11}} t_{B_{11},L_{10}} t_{J_{7},K_{14}} \end{split}$$

$$\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_8,K_{14},L_{10})\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{10}}t_{J_{8},K_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{10}}t_{J_{8},K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_7, K_{13}, L_9)\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 0^{L} 1^{K} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{11},L_{9}} t_{J_{7},K_{13}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 0^{L} 1^{K} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},I_{11}} t_{B_{11},L_{9}} t_{J_{7},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_8, K_{13}, L_9)\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{L} 1^{K} \rangle \langle I_{11} | \hat{1}^{+}_{\alpha} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{13} | \hat{1}^{+}_{\beta} | K_{0} \rangle \langle L_{9} | \hat{0}^{-}_{\alpha} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{11},L_{9}} t_{J_{8},K_{13}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{L} 1^{K} \rangle \langle I_{11} | \hat{1}^{+}_{\alpha} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{13} | \hat{1}^{+}_{\beta} | K_{0} \rangle \langle L_{9} | \hat{0}^{-}_{\alpha} | L_{0} \rangle t_{A_{9},I_{11}} t_{B_{11},L_{9}} t_{J_{8},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_7, K_{13}, L_{10})\rangle =$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},L_{10}}t_{J_{7},K_{13}}\\ +\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},L_{10}}t_{J_{7},K_{13}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_8, K_{13}, L_{10})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 1^{L} 1^{K} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{8} | \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{11},L_{10}} t_{J_{8},K_{13}} \\ &+ \frac{1}{48} \sum_{I} \sum_{L} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 1^{L} 1^{K} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{8} | \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},I_{11}} t_{B_{11},L_{10}} t_{J_{8},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})| \dot{H} | (A_9, B_{11}, I_{12}, J_9, K_9, L_{12}) \rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, J_9} t_{K_9, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, J_9} t_{K_9, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, K_9} t_{J_9, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, K_9} t_{J_9, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{12}} t_{B_{11}, J_9} t_{K_9, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{12}} t_{B_{11}, K_9} t_{J_9, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{12}} t_{B_{11}, K_9} t_{J_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_{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_9, I_{12}} t_{B_{11}, K_9} t_{I_{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_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_9 | \hat{0}_{\alpha}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{7},K_{7},L_{14})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{7},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{7},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{7},L_{14}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{7},L_{14}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{7},L_{14}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{7},L_{14}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\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\langle L_{14}|\hat{0}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{9},K_{7},L_{14})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle \langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{9}}t_{K_{7},L_{14}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle \langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{9}}t_{K_{7},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_9, K_{10}, L_{12})\rangle =$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^K | \hat{g} | 0^J 0^L \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_{10} | \hat{1}_{\alpha}^- | K_0 \rangle \langle L_{12} | \hat{0}_{\alpha}^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, J_9} t_{K_{10}, L_{12}}$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\left\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\right\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_{9},B_{11}}t_{I_{12},J_{9}}t_{K_{10},L_{12}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\left\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\right\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_{9},B_{11}}t_{I_{12},K_{10}}t_{J_{9},L_{12}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\left\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\right\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_{9},B_{11}}t_{I_{12},K_{10}}t_{J_{9},L_{12}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\left\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\right\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_{9},I_{12}}t_{B_{11},J_{9}}t_{K_{10},L_{12}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\left\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\right\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_{9},I_{12}}t_{B_{11},K_{10}}t_{J_{9},L_{12}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\left\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\right\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_{9},I_{12}}t_{B_{11},K_{10}}t_{J_{9},L_{12}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\left\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\right\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_{9},L_{12}}t_{B_{11},J_{9}}t_{I_{12},K_{10}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\left\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\right\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_{9},L_{12}}t_{B_{11},J_{9}}t_{I_{12},K_{10}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\left\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_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{12},J_{9}}\right.\\ &+\frac{1}{48$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{7},K_{8},L_{14})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{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_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{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_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{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_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{7},L_{14}} \\ &+ \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_{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_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{7},L_{14}} \\ &+ \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_{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_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{7},L_{14}} \\ &+ \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_{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_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{7},L_{14}} \\ &+ \frac{-1}{48}\sum_{L}\sum_{I}\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_{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_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{7},L_{14}} \\ &+ \frac{-1}{48}\sum_{L}\sum_{L}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{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_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{7},L_{14}} \\ &+ \frac{-1}{48}\sum_{L}\sum_{L}\sum_{L}\langle 0^{I}0^{J}0^{L}|\hat{g}|1^{L}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle I_{14}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle I_{14}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle I_{14}|\hat{0}_{\beta}^{-}|J_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{9},K_{8},L_{14})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{9}}t_{K_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{9}}t_{K_{8},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{10},K_{9},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}}t_{K_{9},L_{12}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}}t_{K_{9},L_{12}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},K_{9}}t_{J_{10},L_{12}} \end{split}$$

$$\begin{split} &+\frac{-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_{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_{9},B_{11}}t_{I_{12},K_{9}}t_{J_{10},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{9},L_{12}}\\ &+\frac{-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_{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_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{9},L_{12}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{9}}t_{J_{10},L_{12}}\\ &+\frac{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_{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_{9},I_{12}}t_{B_{11},K_{9}}t_{J_{10},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{12},K_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{12},K_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{12},J_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{L}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{K}0^{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_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{12},J_{10}}\\ &+\frac{1}{48}\sum_{L}\sum_{L}\sum_{L}\langle 0^{I}0^{K}|\hat$$

$$\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_8,K_7,L_{14})\rangle =$$

$$\begin{split} & + \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{14} | \hat{0}_{\beta}^{+} | I_{0} \rangle \langle J_{8} | \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},J_{8}} t_{K_{7},L_{14}} \\ & + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 0^{K} 0^{L} \rangle \langle I_{14} | \hat{0}_{\beta}^{+} | I_{0} \rangle \langle J_{8} | \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},J_{8}} t_{K_{7},L_{14}} \\ & + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{14} | \hat{0}_{\beta}^{+} | I_{0} \rangle \langle J_{8} | \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},K_{7}} t_{J_{8},L_{14}} \\ & + \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 0^{K} 0^{L} \rangle \langle I_{14} | \hat{0}_{\beta}^{+} | I_{0} \rangle \langle J_{8} | \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},K_{7}} t_{J_{8},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{10}, K_7, L_{14})\rangle =$$

$$+ \frac{1}{48} \sum \sum \sum \sum \langle 0^I 0^K |\hat{g}| 1^J 0^L \rangle \langle I_{12} |\hat{0}_{\alpha}^+ | I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- | J_0 \rangle \langle K_7 |\hat{0}_{\beta}^- | K_0 \rangle \langle L_{14} |\hat{0}_{\beta}^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, A_9} \langle I_{12} |\hat{0}_{\alpha}^+ | I_0 \rangle \langle I_0 |\hat{0}_{\alpha} | I_0 \rangle \langle I_0 |\hat{0}_$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}}t_{K_{7},L_{14}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{7},L_{14}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_{10}, K_{10}, L_{12})\rangle =$$

$$\begin{split} &+ \frac{-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_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{12} | \hat{0}_{\alpha}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{12},J_{10}} t_{K_{10},L_{12}} \\ &+ \frac{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_{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_{9},B_{11}} t_{I_{12},J_{10}} t_{K_{10},L_{12}} \\ &+ \frac{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_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{12} | \hat{0}_{\alpha}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{12},K_{10}} t_{J_{10},L_{12}} \\ &+ \frac{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_{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_{9},B_{11}} t_{I_{12},K_{10}} t_{J_{10},L_{12}} \\ &+ \frac{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_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{12} | \hat{0}_{\alpha}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{12},K_{10}} t_{J_{10},L_{12}} \\ &+ \frac{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_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{12} | \hat{0}_{\alpha}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{12},K_{10}} t_{J_{10},L_{12}} \\ &+ \frac{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_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{12} | \hat{0}_{\alpha}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{12},K_{10}} t_{I_{10},L_{12}} \\ &+ \frac{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 I_{10} | \hat{I}_{\alpha}^{-} | I_{0} \rangle \langle I_{10} | \hat{I}_{\alpha}^{-} | I_{0} \rangle \langle I_{10} | \hat{I}_{\alpha$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{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_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{10},L_{12}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{10}}t_{J_{10},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{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_{9},I_{12}}t_{B_{11},K_{10}}t_{J_{10},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{12},K_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{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_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{12},K_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{12},J_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{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_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{12},J_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{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}^{-}|J_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{12},J_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{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}^{-}|J_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{8},K_{8},L_{14})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{L}\sum_{L}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{8},L_{14}} \end{split}$$

 $+\frac{-1}{48}\sum_{r}^{I}\sum_{r}^{J}\sum_{r}^{K}\sum_{r}^{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{14}|\hat{0}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{8},L_{14}}$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{10},K_{8},L_{14})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}}t_{K_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{L}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{8},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,I_{12}}t_{B_{11},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_9,I_{12}}t_{B_{11},J_9}t_{K_9,L_{11}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{L}\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_9,I_{12}}t_{B_{11},J_9}t_{K_9,L_{11}}\\ &+ \frac{-1}{48}\sum_{L}\sum_{L}\sum_$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{9}}t_{J_{9},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{9}}t_{I_{12},K_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{9}}t_{I_{12},K_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},K_{9}}t_{I_{12},J_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},K_{9}}t_{I_{12},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{7},K_{7},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{7},L_{13}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{9},K_{7},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{9}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{9}}t_{K_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{9},K_{10},L_{11})\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_{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_{9},B_{11}}t_{I_{12},J_{9}}t_{K_{10},L_{11}} \\ &+ \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_{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_{9},B_{11}}t_{I_{12},J_{9}}t_{K_{10},L_{11}} \\ &+ \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_{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_{9},B_{11}}t_{I_{12},K_{10}}t_{J_{9},L_{11}} \\ &+ \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_{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_{9},I_{12}}t_{B_{11},J_{9}}t_{K_{10},L_{11}} \\ &+ \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_{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_{9},I_{12}}t_{B_{11},J_{9}}t_{K_{10},L_{11}} \\ &+ \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_{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_{9},I_{12}}t_{B_{11},K_{10}}t_{J_{9},L_{11}} \\ &+ \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_{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_{9},I_{12}}t_{B_{11},K_{10}}t_{J_{9},L_{11}} \\ &+ \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_{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_{9},I_{12}}t_{B_{11},K_{10}}t_{J_{9},L_{11}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{L}\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_{9$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{K} 1^{L} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \rangle t_{A_{9}, L_{11}} t_{B_{11}, J_{9}} t_{I_{12}, K_{10}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{K} | \hat{g} | 0^{J} 1^{L} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \rangle t_{A_{9}, L_{11}} t_{B_{11}, K_{10}} t_{I_{12}, J_{9}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{K} 1^{L} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \rangle t_{A_{9}, L_{11}} t_{B_{11}, K_{10}} t_{I_{12}, J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{7},K_{8},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{8},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{8},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{7},L_{13}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{9},K_{8},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{9}}t_{K_{8},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{9}}t_{K_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_{10},K_9,L_{11})\rangle = \\ &+ \frac{-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_9|\hat{0}_{\alpha}^{-}|K_0\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_0\rangle t_{A_9,B_{11}}t_{I_{12},J_{10}}t_{K_9,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_{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_9,B_{11}}t_{I_{12},J_{10}}t_{K_9,L_{11}} \\ &+ \frac{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_9|\hat{0}_{\alpha}^{-}|K_0\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_0\rangle t_{A_9,B_{11}}t_{I_{12},K_9}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_{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_9,B_{11}}t_{I_{12},K_9}t_{J_{10},L_{11}} \\ &+ \frac{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_9|\hat{0}_{\alpha}^{-}|K_0\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_0\rangle t_{A_9,I_{12}}t_{B_{11},J_{10}}t_{K_9,L_{11}} \\ &+ \frac{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_9|\hat{0}_{\alpha}^{-}|K_0\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_0\rangle t_{A_9,I_{12}}t_{B_{11},J_{10}}t_{K_9,L_{11}} \\ &+ \frac{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_9|\hat{0}_{\alpha}^{-}|K_0\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_0\rangle t_{A_9,I_{12}}t_{B_{11},K_9}t_{J_{10},L_{11}} \\ &+ \frac{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_9|\hat{0}_{\alpha}^{-}|K_0\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_0\rangle t_{A_9,I_{12}}t_{B_{11},K_9}t_{J_{10},L_{11}} \\ &+ \frac{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_9|\hat{0}_{\alpha}^{-}|K_0\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_0\rangle t_{A_9,I_{12}}t_{B_{11},K_9}t_{J_{10},L_{11}} \\ &+ \frac{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_9|\hat{0}_{\alpha}^{-}|K_0\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_0\rangle t_{A_$$

$$+ \frac{1}{48} \sum_{I} \sum_{K} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 0^{K} 1^{L} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \rangle t_{A_{9}, L_{11}} t_{B_{11}, K_{9}} t_{I_{12}, J_{10}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{8},K_{7},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{8},L_{13}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{10},K_{7},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})| \hat{H} | (A_9, B_{11}, I_{12}, J_{10}, K_{10}, L_{11}) \rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, J_{10}} t_{K_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, J_{10}} t_{K_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, K_{10}} t_{J_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{12}, K_{10}} t_{J_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{12}} t_{B_{11}, J_{10}} t_{K_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{12}} t_{B_{11}, J_{10}} t_{K_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J | \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_9, I_{12}} t_{B_{11}, K_{10}} t_{J_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_9, I_{12}} t_{B_{11}, K_{10}} t_{J_{10}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{8},K_{8},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{8},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{8},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{8},L_{13}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{10},K_{8},L_{13})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle \langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle \langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},J_{10}}t_{K_{8},L_{13}} \\ &+ \frac{1}{48} \sum_{I} \sum_{L} \sum_{K} \sum_{L} \langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle \langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle \langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},J_{10}}t_{K_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_9, K_9, L_{12})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{11}, J_9} t_{K_9, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{11}, J_9} t_{K_9, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{11}, K_9} t_{J_0, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{11}, K_9} t_{J_0, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{11}} t_{B_{11}, J_9} t_{K_9, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{11}} t_{B_{11}, K_9} t_{J_9, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{11}} t_{B_{11}, K_9} t_{J_9, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, I_{11}} t_{B_{11}, K_9} t_{J_{11}, K_9} \\ &+ \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$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_7, K_7, L_{14})\rangle =$$

$$\begin{split} & + \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^{I} 0^{K} | \hat{g} | 0^{J} 0^{L} \rangle \langle I_{13} | \hat{1}^{+}_{\beta} | I_{0} \rangle \langle J_{7} | \hat{0}^{-}_{\beta} | J_{0} \rangle \langle K_{7} | \hat{0}^{-}_{\beta} | K_{0} \rangle \langle L_{14} | \hat{0}^{+}_{\beta} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{13},J_{7}} t_{K_{7},L_{14}} \\ & + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 0^{K} 0^{L} \rangle \langle I_{13} | \hat{1}^{+}_{\beta} | I_{0} \rangle \langle J_{7} | \hat{0}^{-}_{\beta} | J_{0} \rangle \langle K_{7} | \hat{0}^{-}_{\beta} | K_{0} \rangle \langle L_{14} | \hat{0}^{+}_{\beta} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{13},J_{7}} t_{K_{7},L_{14}} \\ & + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 0^{J} 0^{L} \rangle \langle I_{13} | \hat{1}^{+}_{\beta} | I_{0} \rangle \langle J_{7} | \hat{0}^{-}_{\beta} | J_{0} \rangle \langle K_{7} | \hat{0}^{-}_{\beta} | K_{0} \rangle \langle L_{14} | \hat{0}^{+}_{\beta} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{13},K_{7}} t_{J_{7},L_{14}} \\ & + \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 0^{K} 0^{L} \rangle \langle I_{13} | \hat{1}^{+}_{\beta} | I_{0} \rangle \langle J_{7} | \hat{0}^{-}_{\beta} | J_{0} \rangle \langle K_{7} | \hat{0}^{-}_{\beta} | K_{0} \rangle \langle L_{14} | \hat{0}^{+}_{\beta} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{13},K_{7}} t_{J_{7},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{9},K_{7},L_{14})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle \langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{9}}t_{K_{7},L_{14}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle \langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{7},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{11},J_9,K_{10},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,B_{11}}t_{I_{11},J_9}t_{K_{10},L_{12}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,B_{11}}t_{I_{11},J_9}t_{K_{10},L_{12}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,B_{11}}t_{I_{11},K_{10}}t_{J_9,L_{12}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,B_{11}}t_{I_{11},K_{10}}t_{J_9,L_{12}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,I_{11}}t_{B_{11},J_9}t_{K_{10},L_{12}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,I_{11}}t_{B_{11},J_9}t_{K_{10},L_{12}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,I_{11}}t_{B_{11},K_{10}}t_{J_9,L_{12}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,I_{11}}t_{B_{11},K_{10}}t_{J_9,L_{12}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,I_{11}}t_{B_{11},K_{10}}t_{J_{11},K_{10}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,L_{12}}t_{B_{11},K_{10}}t_{I_{11},I_9}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{7},K_{8},L_{14})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{14}|\hat{0}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{14}|\hat{0}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{8},L_{14}} \end{split}$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{7},L_{14}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{7},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{9},K_{8},L_{14})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{9}}t_{K_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{8},L_{14}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{10}, K_9, L_{12})\rangle =$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K} \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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{10}}t_{K_{9},L_{12}}}{+\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_{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_{9},B_{11}}t_{I_{11},J_{10}}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_{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_{9},B_{11}}t_{I_{11},J_{10}}t_{K_{9},L_{12}}}\\ &+\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_{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_{9},B_{11}}t_{I_{11},K_{9}}t_{J_{10},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_{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_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{9},L_{12}}\\ &+\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_{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_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{10},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_{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_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{10},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_{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_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{10},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_{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_{9},L_{12}}t_{B_{11},K_{9}}t_{J_{11},K_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{L}\sum_{L} \langle$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{8},K_{7},L_{14})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{7},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{7},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{8},L_{14}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{8},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{10},K_{7},L_{14})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{10}}t_{K_{7},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{7},L_{14}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{10}, K_{10}, L_{12})\rangle = \\ + \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{10} | \hat{1}_{\alpha}^- | K_0 \rangle \langle L_{12} | \hat{0}_{\alpha}^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_{11}, J_{10}} t_{K_{10}, L_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J | \hat{g} | 1^K 0^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_9, B_{11}} t_{I_{11}, J_{10}} t_{K_{10}, L_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J | \hat{g} | 1^K 0^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_9, B_{11}} t_{I_{11}, K_{10}} t_{J_{10}, L_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J | \hat{g} | 1^K 0^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_9, B_{11}} t_{I_{11}, K_{10}} t_{J_{10}, L_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J | \hat{g} | 1^K 0^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_9, I_{11}} t_{B_{11}, J_{10}} t_{K_{10}, L_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J | \hat{g} | 1^K 0^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_9, I_{11}} t_{B_{11}, J_{10}} t_{K_{10}, L_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \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_{10} | \hat{1}_{\alpha}^- | K_0 \rangle \langle L_{12} | \hat{0}_{\alpha}^+ | L_0 \rangle t_{A_9, I_{11}} t_{B_{11}, K_{10}} t_{J_{10}, L_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \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_{10} | \hat{1}_{\alpha}^- | K_0 \rangle \langle L_{12} | \hat{0}_{\alpha}^+ | L_0 \rangle t_{A_9, I_{11}} t_{B_{11}, K_{10}} t_{I_{11}, K_{10}} \\ + \frac{1}{48} \sum_{I} \sum_{$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{8},K_{8},L_{14})\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_{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_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{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_{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_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{8},L_{14}} \\ &+ \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_{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_{9},B_{11}}t_{I_{13},K_{8}}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_{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_{9},B_{11}}t_{I_{13},K_{8}}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_{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_{9},B_{11}}t_{I_{13},K_{8}}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_{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_{9},B_{11}}t_{I_{13},K_{8}}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_{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\langle L_{14}|\hat{0}_{\beta}^$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{10},K_{8},L_{14})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{10}}t_{K_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{8},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})| \hat{H} | (A_9, B_{11}, I_{11}, J_9, K_9, L_{11}) \rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^K | \hat{g} | 0^J 1^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_9, B_{11}} t_{I_{11}, J_9} t_{K_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^J | \hat{g} | 0^K 1^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_9, B_{11}} t_{I_{11}, J_9} t_{K_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^K | \hat{g} | 0^J 1^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_9, B_{11}} t_{I_{11}, K_9} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^K | \hat{g} | 0^J 1^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_9, B_{11}} t_{I_{11}, K_9} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^K | \hat{g} | 0^J 1^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_9, I_{11}} t_{B_{11}, J_9} t_{K_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^K | \hat{g} | 0^J 1^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_9, I_{11}} t_{B_{11}, K_9} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^J | \hat{g} | 0^K 1^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_9, I_{11}} t_{B_{11}, K_9} 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_{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_9, I_{11}} t_{B_{11}, K_9} t_{J_{11}, K_9} \\ &+ \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_{11} | \hat{1}_{\alpha}^+ | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_9 | \hat{0}_{\alpha}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{7},K_{7},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{7},L_{13}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{7},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_9, K_7, L_{13})\rangle =$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^K | \hat{g} | 0^J 1^L \rangle \langle I_{11} | \hat{1}^+_{\alpha} | I_0 \rangle \langle J_9 | \hat{0}^-_{\alpha} | J_0 \rangle \langle K_7 | \hat{0}^-_{\beta} | K_0 \rangle \langle L_{13} | \hat{1}^+_{\beta} | L_0 \rangle t_{A_9, B_{11}} t_{I_{11}, J_9} t_{K_7, L_{13}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{K} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 0^{J} 1^{L} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle \langle L_{13} | \hat{1}_{\beta}^{+} | L_{0} \rangle t_{A_{9},I_{11}} t_{B_{11},J_{9}} t_{K_{7},L_{13}} t_{K_{7},L_{13}} t_{A_{11},I_{12},I_{13}} t_{A_{11},I_{12},I_{13}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_9, K_{10}, L_{11})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^K | \hat{g} | 0^J 1^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_9, B_{11}} t_{I_{11}, J_9} t_{K_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^J | \hat{g} | 1^K 1^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_9, B_{11}} t_{I_{11}, J_9} t_{K_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^I 1^K | \hat{g} | 0^J 1^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_9, B_{11}} t_{I_{11}, K_{10}} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^I 0^J | \hat{g} | 1^K 1^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_9, B_{11}} t_{I_{11}, K_{10}} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^I 1^K | \hat{g} | 0^J 1^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_9, I_{11}} t_{B_{11}, J_9} t_{K_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^I 0^J | \hat{g} | 1^K 1^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_9, I_{11}} t_{B_{11}, K_{10}} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J | \hat{g} | 1^K 1^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_9, I_{11}} t_{B_{11}, K_{10}} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J | \hat{g} | 1^K 1^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_9, L_{11}} t_{B_{11}, K_{10}} t_{J_{11}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J | \hat{g} | 1^K 1^L \rangle \langle I_{11}| \hat{1$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{7},K_{8},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{8},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{8},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{7},L_{13}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{9},K_{8},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{9}}t_{K_{8},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{9}}t_{K_{8},L_{13}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{10}, K_9, L_{11})\rangle = \\ + \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9| \hat{0}^-_{\alpha} | K_0 \rangle \langle L_{11}| \hat{1}^+_{\alpha} | L_0 \rangle t_{A_9, B_{11}} t_{I_{11}, J_{10}} t_{K_9, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J | \hat{g} | 0^K 1^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_9, B_{11}} t_{I_{11}, J_{10}} t_{K_9, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9| \hat{0}^-_{\alpha} | K_0 \rangle \langle L_{11}| \hat{1}^+_{\alpha} | L_0 \rangle t_{A_9, B_{11}} t_{I_{11}, K_9} t_{J_{10}, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9| \hat{0}^-_{\alpha} | K_0 \rangle \langle L_{11}| \hat{1}^+_{\alpha} | L_0 \rangle t_{A_9, B_{11}} t_{I_{11}, K_9} t_{J_{10}, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9| \hat{0}^-_{\alpha} | K_0 \rangle \langle L_{11}| \hat{1}^+_{\alpha} | L_0 \rangle t_{A_9, I_{11}} t_{B_{11}, J_{10}} t_{K_9, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9| \hat{0}^-_{\alpha} | K_0 \rangle \langle L_{11}| \hat{1}^+_{\alpha} | L_0 \rangle t_{A_9, I_{11}} t_{B_{11}, J_{10}} t_{K_9, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9| \hat{0}^-_{\alpha} | K_0 \rangle \langle L_{11}| \hat{1}^+_{\alpha} | L_0 \rangle t_{A_9, I_{11}} t_{B_{11}, K_9} t_{J_{10}, L_{11}} \\ + \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_9| \hat{0}^-_{\alpha} | K_0 \rangle \langle L_{11}| \hat{1}^+_{\alpha} | L_0 \rangle t_{A_9, L_{11}} t_{B_{11}, J_0} t_{I_{11}, K_9} t_{J_{11}, K_9} t_{J_{11}, J_9} \\ + \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$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{8},K_{7},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{8},L_{13}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{10},K_{7},L_{13})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle \langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},J_{10}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48} \sum_{I} \sum_{L} \sum_{K} \sum_{L} \langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle \langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{7},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{10}, K_{10}, L_{11})\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},B_{11}}t_{I_{11},J_{10}}t_{K_{10},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},B_{11}}t_{I_{11},J_{10}}t_{K_{10},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},B_{11}}t_{I_{11},K_{10}}t_{J_{10},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},B_{11}}t_{I_{11},K_{10}}t_{J_{10},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},I_{11}}t_{B_{11},J_{10}}t_{K_{10},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\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_{9},I_{11}}t_{B_{11},K_{10}}t_{J_{10},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\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_{9},I_{11}}t_{B_{11},K_{10}}t_{J_{10},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\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_{9},L_{11}}t_{B_{11},K_{10}}t_{I_{11},K_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\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_{9},L_{11}}t_{B_{11},K_{10}}t_{I_{11},K_{10}}\\ &+\frac{1$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_8, K_8, L_{13})\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{8},L_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{8},L_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{8},L_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{13}|\hat{1}^{+}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{8},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_{10}, K_8, L_{13})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{K} | \hat{g} | 1^{J} 1^{L} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{8} | \hat{1}_{\beta}^{-} | K_{0} \rangle \langle L_{13} | \hat{1}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{11},J_{10}} t_{K_{8},L_{13}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{K} | \hat{g} | 1^{J} 1^{L} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{8} | \hat{1}_{\beta}^{-} | K_{0} \rangle \langle L_{13} | \hat{1}_{\beta}^{+} | L_{0} \rangle t_{A_{9},I_{11}} t_{B_{11},J_{10}} t_{K_{8},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_7, K_9, L_{14})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 0^{K} 0^{L} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{12},K_{9}} t_{J_{7},L_{14}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 0^{K} 0^{L} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},I_{12}} t_{B_{11},K_{9}} t_{J_{7},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{12},J_8,K_9,L_{14})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}|0^K 0^L \rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_8|\hat{1}_{\beta}^- |J_0\rangle \langle K_9|\hat{0}_{\alpha}^- |K_0\rangle \langle L_{14}|\hat{0}_{\beta}^+ |L_0\rangle t_{A_9,B_{11}} t_{I_{12},K_9} t_{J_8,L_{14}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}|0^K 0^L \rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_8|\hat{1}_{\beta}^- |J_0\rangle \langle K_9|\hat{0}_{\alpha}^- |K_0\rangle \langle L_{14}|\hat{0}_{\beta}^+ |L_0\rangle t_{A_9,I_{12}} t_{B_{11},K_9} t_{J_8,L_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{7},K_{10},L_{14})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},K_{10}}t_{J_{7},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{10}}t_{J_{7},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{8},K_{10},L_{14})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},K_{10}}t_{J_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{10}}t_{J_{8},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{7},K_{9},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},K_{9}}t_{J_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{9}}t_{J_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{12},J_{8},K_{9},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},K_{9}}t_{J_{8},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{9}}t_{J_{8},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_7, K_{10}, L_{13})\rangle =$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J | \hat{g} | 1^K 1^L \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\beta}^- | J_0 \rangle \langle K_{10} | \hat{1}_{\alpha}^- | K_0 \rangle \langle L_{13} | \hat{1}_{\beta}^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_{12}, K_{10}} t_{J_7, L_{13}} t_{J_7, L_{13}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{K} 1^{L} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{13} | \hat{1}_{\beta}^{+} | L_{0} \rangle t_{A_{9}, I_{12}} t_{B_{11}, K_{10}} t_{J_{7}, L_{13}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{12}, J_8, K_{10}, L_{13})\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{12},K_{10}}t_{J_{8},L_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{12}}t_{B_{11},K_{10}}t_{J_{8},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_7, K_9, L_{14})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 0^{K} 0^{L} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{11},K_{9}} t_{J_{7},L_{14}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 0^{K} 0^{L} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},I_{11}} t_{B_{11},K_{9}} t_{J_{7},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_8, K_9, L_{14})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{K} 0^{L} \rangle \langle I_{11} | \hat{1}^{+}_{\alpha} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{9} | \hat{0}^{-}_{\alpha} | K_{0} \rangle \langle L_{14} | \hat{0}^{+}_{\beta} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{11},K_{9}} t_{J_{8},L_{14}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{K} 0^{L} \rangle \langle I_{11} | \hat{1}^{+}_{\alpha} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{9} | \hat{0}^{-}_{\alpha} | K_{0} \rangle \langle L_{14} | \hat{0}^{+}_{\beta} | L_{0} \rangle t_{A_{9},I_{11}} t_{B_{11},K_{9}} t_{J_{8},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_7, K_{10}, L_{14})\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{10}}t_{J_{7},L_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{10}}t_{J_{7},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_8, K_{10}, L_{14})\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{10}}t_{J_{8},L_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{10}}t_{J_{8},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{11}, J_7, K_9, L_{13})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 0^{K} 1^{L} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{13} | \hat{1}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{11},K_{9}} t_{J_{7},L_{13}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 0^{K} 1^{L} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{13} | \hat{1}_{\beta}^{+} | L_{0} \rangle t_{A_{9},I_{11}} t_{B_{11},K_{9}} t_{J_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{8},K_{9},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{9}}t_{J_{8},L_{13}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{9}}t_{J_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{7},K_{10},L_{13})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle \langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{10}}t_{J_{7},L_{13}}\\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle \langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{10}}t_{J_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{11},J_{8},K_{10},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{11},K_{10}}t_{J_{8},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},I_{11}}t_{B_{11},K_{10}}t_{J_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_{12},K_9,L_7)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J |\hat{g}|0^L 0^K \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0 \rangle \langle K_9|\hat{0}^-_{\alpha}|K_0 \rangle \langle L_7|\hat{0}^-_{\beta}|L_0 \rangle t_{A_9,B_{11}} t_{I_{14},L_7} t_{J_{12},K_9} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}|0^L 0^K \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0 \rangle \langle K_9|\hat{0}^-_{\alpha}|K_0 \rangle \langle L_7|\hat{0}^-_{\beta}|L_0 \rangle t_{A_9,J_{12}} t_{B_{11},K_9} t_{I_{14},L_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_{12},K_9,L_8)\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_9|\hat{0}^-_{\alpha}|K_0\rangle\langle L_8|\hat{1}^-_{\beta}|L_0\rangle t_{A_9,B_{11}}t_{I_{14},L_8}t_{J_{12},K_9}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^I0^J|\hat{g}|1^L0^K\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_9|\hat{0}^-_{\alpha}|K_0\rangle\langle L_8|\hat{1}^-_{\beta}|L_0\rangle t_{A_9,J_{12}}t_{B_{11},K_9}t_{I_{14},L_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{12},K_{10},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{12},K_{10}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{10}}t_{I_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_{12},K_{10},L_8)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J |\hat{g}| 1^L 1^K \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle \langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle \langle L_8|\hat{1}^-_{\beta}|L_0\rangle t_{A_9,B_{11}} t_{I_{14},L_8} t_{J_{12},K_{10}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}| 1^L 1^K \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle \langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle \langle L_8|\hat{1}^-_{\beta}|L_0\rangle t_{A_9,J_{12}} t_{B_{11},K_{10}} t_{I_{14},L_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{12},K_{9},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{12}|\hat{0}^{+}_{\alpha}|J_{0}\rangle\langle K_{9}|\hat{0}^{-}_{\alpha}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{12},K_{9}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{12}|\hat{0}^{+}_{\alpha}|J_{0}\rangle\langle K_{9}|\hat{0}^{-}_{\alpha}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{9}}t_{I_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{12},K_{9},L_{8})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle \langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle \langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle \langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{12},K_{9}}\\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle \langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle \langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle \langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{9}}t_{I_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{12},K_{10},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{12},K_{10}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{10}}t_{I_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{12},K_{10},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{12},K_{10}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{10}}t_{I_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_{11},K_9,L_7)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}|0^L 0^K \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle \langle K_9|\hat{0}^-_{\alpha}|K_0\rangle \langle L_7|\hat{0}^-_{\beta}|L_0\rangle t_{A_9,B_{11}} t_{I_{14},L_7} t_{J_{11},K_9} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}|0^L 0^K \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle \langle K_9|\hat{0}^-_{\alpha}|K_0\rangle \langle L_7|\hat{0}^-_{\beta}|L_0\rangle t_{A_9,J_{11}} t_{B_{11},K_9} t_{I_{14},L_7} t_{A_9,J_{11}} t$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{11},K_{9},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{11}|\hat{1}^{+}_{\alpha}|J_{0}\rangle\langle K_{9}|\hat{0}^{-}_{\alpha}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{11},K_{9}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{11}|\hat{1}^{+}_{\alpha}|J_{0}\rangle\langle K_{9}|\hat{0}^{-}_{\alpha}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},K_{9}}t_{I_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_{11},K_{10},L_7)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J |\hat{g}|0^L 1^K \rangle \langle I_{14}|\hat{0}_\beta^+ |I_0\rangle \langle J_{11}|\hat{1}_\alpha^+ |J_0\rangle \langle K_{10}|\hat{1}_\alpha^- |K_0\rangle \langle L_7|\hat{0}_\beta^- |L_0\rangle t_{A_9,B_{11}} t_{I_{14},L_7} t_{J_{11},K_{10}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}|0^L 1^K \rangle \langle I_{14}|\hat{0}_\beta^+ |I_0\rangle \langle J_{11}|\hat{1}_\alpha^+ |J_0\rangle \langle K_{10}|\hat{1}_\alpha^- |K_0\rangle \langle L_7|\hat{0}_\beta^- |L_0\rangle t_{A_9,J_{11}} t_{B_{11},K_{10}} t_{I_{14},L_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_{11},K_{10},L_8)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J |\hat{g}| 1^L 1^K \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle \langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle \langle L_8|\hat{1}^-_{\beta}|L_0\rangle t_{A_9,B_{11}} t_{I_{14},L_8} t_{J_{11},K_{10}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}| 1^L 1^K \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle \langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle \langle L_8|\hat{1}^-_{\beta}|L_0\rangle t_{A_9,J_{11}} t_{B_{11},K_{10}} t_{I_{14},L_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{13},J_{11},K_9,L_7)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 1^J |\hat{g}|0^L 0^K \rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle \langle K_9|\hat{0}^-_{\alpha}|K_0\rangle \langle L_7|\hat{0}^-_{\beta}|L_0\rangle t_{A_9,B_{11}} t_{I_{13},L_7} t_{J_{11},K_9} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 1^J |\hat{g}|0^L 0^K \rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle \langle K_9|\hat{0}^-_{\alpha}|K_0\rangle \langle L_7|\hat{0}^-_{\beta}|L_0\rangle t_{A_9,J_{11}} t_{B_{11},K_9} t_{I_{13},L_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{11},K_{9},L_{8})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{11},K_{9}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},K_{9}}t_{I_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{11},K_{10},L_{7})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{11},K_{10}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},K_{10}}t_{I_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{13},J_{11},K_{10},L_8)\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle\langle L_8|\hat{1}^-_{\beta}|L_0\rangle t_{A_9,B_{11}}t_{I_{13},L_8}t_{J_{11},K_{10}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^I1^J|\hat{g}|1^L1^K\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle\langle L_8|\hat{1}^-_{\beta}|L_0\rangle t_{A_9,J_{11}}t_{B_{11},K_{10}}t_{I_{13},L_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{12},K_{7},L_{9})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{12}|\hat{0}^{+}_{\alpha}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{9}|\hat{0}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{12},L_{9}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{12}|\hat{0}^{+}_{\alpha}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{9}|\hat{0}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{9}}t_{I_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_{12},K_8,L_9)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}| 1^K 0^L \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0 \rangle \langle K_8|\hat{1}^-_{\beta}|K_0 \rangle \langle L_9|\hat{0}^-_{\alpha}|L_0 \rangle t_{A_9,B_{11}} t_{I_{14},K_8} t_{J_{12},L_9} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}| 1^K 0^L \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0 \rangle \langle K_8|\hat{1}^-_{\beta}|K_0 \rangle \langle L_9|\hat{0}^-_{\alpha}|L_0 \rangle t_{A_9,J_{12}} t_{B_{11},L_9} t_{I_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{12},K_{7},L_{10})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{12},L_{10}} \\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{14},K_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_{12}, K_8, L_{10})\rangle =$$

$$+\frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}| 1^K 1^L \rangle \langle I_{14} |\hat{0}^+_{\beta} |I_0\rangle \langle J_{12} |\hat{0}^+_{\alpha} |J_0\rangle \langle K_8 |\hat{1}^-_{\beta} |K_0\rangle \langle L_{10} |\hat{1}^-_{\alpha} |L_0\rangle t_{A_9, B_{11}} t_{I_{14}, K_8} t_{J_{12}, L_{10}}$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{K} 1^{L} \rangle \langle I_{14} | \hat{0}^{+}_{\beta} | I_{0} \rangle \langle J_{12} | \hat{0}^{+}_{\alpha} | J_{0} \rangle \langle K_{8} | \hat{1}^{-}_{\beta} | K_{0} \rangle \langle L_{10} | \hat{1}^{-}_{\alpha} | L_{0} \rangle t_{A_{9},J_{12}} t_{B_{11},L_{10}} t_{I_{14},K_{8}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_{12}, K_7, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{12},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{9}}t_{I_{13},K_{7}}t_{A_{9},I_{12}}t_{$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_{12}, K_8, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{12}|\hat{0}^{+}_{\alpha}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{9}|\hat{0}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{12},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{12}|\hat{0}^{+}_{\alpha}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{9}|\hat{0}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{9}}t_{I_{13},K_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_{12}, K_7, L_{10})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{12},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{13},K_{7}}t_{A_{12},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{13},K_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{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_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{13},K_{7}}\\ &+\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_{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_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{13},K_{7}}\\ &+\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_{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_{9},J_{12}}t_{B_{11},L_{10}}t_{A_{13},K_{7}}\\ &+\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_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{10}\rangle\langle I_{13}|\hat{1}_{\beta}^{-}|L_{10}\rangle\langle I_{13}|\hat{0}_{\beta}^{-}|L_{10}\rangle\langle I_{13$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_{12}, K_8, L_{10})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{12}|\hat{0}^{+}_{\alpha}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{10}|\hat{1}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{12},L_{10}}\\+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{12}|\hat{0}^{+}_{\alpha}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{10}|\hat{1}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{13},K_{8}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_{11}, K_7, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{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_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{11},L_{9}}\\ &+\frac{-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_{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_{9},J_{11}}t_{B_{11},L_{9}}t_{I_{14},K_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{L}\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_{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_{9},J_{11}}t_{B_{11},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{L}\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_{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_{9},J_{11}}t_{B_{11},L_{9}}\\ &+\frac{-1}{48}\sum_{L}\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_{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_{9},J_{11}}t_{B_{11},L_{9}}\\ &+\frac{-1}{48}\sum_{L}\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_{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_{9},J_{11}}t_{B_{11},L_{9}}\\ &+\frac{-1}{48}\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_{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_{9},J_{11}}\\ &+\frac{-1}{48}\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_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle I_{14}|\hat{0}_{\beta}^{-}|L_{0}\rangle\langle I_{14}|\hat{0}_{\beta}^{-}|L$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_{11}, K_8, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{11},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},L_{9}}t_{I_{14},K_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_{11}, K_7, L_{10})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{11},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},L_{10}}t_{I_{14},K_{7}}t_{A_{11},K_{11},K_{11}}t_{A_{11},K_{1$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_{11}, K_8, L_{10})\rangle =$$

$$+\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_{9},B_{11}}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_{9},J_{11}}t_{B_{11},L_{10}}t_{I_{14},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_{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_{9},J_{11}}t_{B_{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_{9},J_{11}}\\ +\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_{9},J_{11}}\\ +\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_{9},J_{11}}\\ +\frac{-1}{48}\sum_{L}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}|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_{9},J_{11}}\\ +\frac{-1}{48}\sum_{L}\sum_{L}\langle 0^{L}1^{J}|\hat{g}|1^{L}|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_{9},J_{11}}\\ +\frac{-1}{48}\sum_{L}\sum_{L}\langle 0^{L}1^{J}|1^{L}|1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|1^{L}|1^{L}\rangle\langle I_{14}|1^{L}\rangle\langle I_{14}|1^{L}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_{11}, K_7, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{11},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},L_{9}}t_{I_{13},K_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{9}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{9}\rangle\langle I_{13}|\hat{0}_{\beta}^{-}|K_{9}\rangle\langle I_{13}|\hat{0}_{\beta}^{-}|K$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_{11}, K_8, L_9)\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{11},L_{9}}\\+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},L_{9}}t_{I_{13},K_{8}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_{11}, K_7, L_{10})\rangle =$$

$$+\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_{9},B_{11}}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_{9},J_{11}}t_{B_{11},L_{10}}t_{I_{13},K_{7}}\\+\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_{9},J_{11}}t_{B_{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_{9},J_{11}}t_{B_{11},L_{10}}\\+\frac{-1}{48}\sum_{L}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}|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_{10}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{10}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{10}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{10}\rangle\langle K_{10}|\hat{0}_{\beta}^{-}|K_{10}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{10}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{10}\rangle\langle I_{11}|\hat{1}_{\beta}^{-}|L_{10}\rangle\langle I_{11}|\hat{1}_{\beta}^{-}|L_{10}\rangle\langle I_{11}|\hat{1}_{\beta}^{-}|L_{10}\rangle\langle I_{11}|\hat{1}_{\beta}^{-}|L_{10}\rangle\langle I_{11}|\hat{1}_{\beta}^{-}|L_{10}\rangle\langle I_{11}|\hat{1}_{\beta}^{-}|L_{10}\rangle\langle I_{11}|\hat{1}_{\beta}^{-}|L_{10}\rangle\langle I_{11}|\hat{1}_{\beta}^{-}|L_{10}\rangle\langle I_{11}|\hat{1}_{\beta}^{-}|L_{10}\rangle\langle I_{11}|$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{11},K_{8},L_{10})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{11},L_{10}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},L_{10}}t_{I_{13},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_{12}, K_{12}, L_9)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_9, J_{12}} t_{K_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_9, J_{12}} t_{K_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_9, J_{12}} t_{K_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_9, K_{12}} t_{J_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{12}} t_{B_{11}, I_9} t_{K_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{12}} t_{B_{11}, I_9} t_{K_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{12}} t_{B_{11}, L_9} t_{I_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_{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_9, K_{12}} t_{B_{11}, I_9} t_{I_{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_9, K_{12}} t_{B_{11}, I_9} t_{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{14},K_{14},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{14},L_{7}}t_{A_{14},A_{14},A_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{14},L_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{14},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{14},L_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_{12}, K_{14}, L_7)\rangle =$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^K | \hat{g} | 0^J 0^L \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{12} | \hat{0}_{\alpha}^+ | J_0 \rangle \langle K_{14} | \hat{0}_{\beta}^+ | K_0 \rangle \langle L_7 | \hat{0}_{\beta}^- | L_0 \rangle t_{A_9, B_{11}} t_{I_9, J_{12}} t_{K_{14}, L_7}$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 0^{J} 0^{L} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle \langle L_{7} | \hat{0}_{\beta}^{-} | L_{0} \rangle t_{A_{9},J_{12}} t_{B_{11},I_{9}} t_{K_{14},L_{7}} dt_{A_{12},I_{12}} dt_{A_{14},I_{14},I_{14}} dt_{A_{14},I$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_{12}, K_{12}, L_{10})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{12} | \hat{0}_\alpha^+ | K_0 \rangle \langle L_{10} | \hat{1}_\alpha^- | L_0 \rangle t_{A_9, B_{11}} t_{I_9, J_{12}} t_{K_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 0^K 1^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_9, B_{11}} t_{I_9, J_{12}} t_{K_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{12} | \hat{0}_\alpha^+ | K_0 \rangle \langle L_{10} | \hat{1}_\alpha^- | L_0 \rangle t_{A_9, B_{11}} t_{I_9, K_{12}} t_{J_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 0^K 1^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_9, B_{11}} t_{I_9, K_{12}} t_{J_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 0^K 1^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_9, J_{12}} t_{B_{11}, I_9} t_{K_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 0^K 1^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_9, J_{12}} t_{B_{11}, I_9} t_{K_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 0^K 1^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_9, J_{12}} t_{B_{11}, L_{10}} t_{I_9, K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 0^K 1^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_9, K_{12}} t_{B_{11}, L_{10}} t_{I_9, K_{12}} \\ &+ \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_{12} | \hat{0}_\alpha^+ | K_0 \rangle \langle L_{10}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{14},K_{14},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{14},L_{8}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{14},L_{8}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{14},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{12},K_{14},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{12}}t_{K_{14},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{12}, K_{12}, L_9)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{12} | \hat{0}^+_{\alpha} | K_0 \rangle \langle L_9 | \hat{0}^-_{\alpha} | L_0 \rangle t_{A_9, B_{11}} t_{I_{10}, J_{12}} t_{K_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^J | \hat{g} | 0^K 0^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_9, B_{11}} t_{I_{10}, J_{12}} t_{K_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{12} | \hat{0}^+_{\alpha} | K_0 \rangle \langle L_9 | \hat{0}^-_{\alpha} | L_0 \rangle t_{A_9, B_{11}} t_{I_{10}, K_{12}} t_{J_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{12} | \hat{0}^+_{\alpha} | K_0 \rangle \langle L_9 | \hat{0}^-_{\alpha} | L_0 \rangle t_{A_9, B_{11}} t_{I_{10}, K_{12}} t_{J_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{12} | \hat{0}^+_{\alpha} | K_0 \rangle \langle L_9 | \hat{0}^-_{\alpha} | L_0 \rangle t_{A_9, J_{12}} t_{B_{11}, I_{10}} t_{K_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^J | \hat{g} | 0^K 0^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_9, J_{12}} t_{B_{11}, I_{10}} t_{K_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{12} | \hat{0}^+_{\alpha} | K_0 \rangle \langle L_9 | \hat{0}^-_{\alpha} | L_0 \rangle t_{A_9, J_{12}} t_{B_{11}, L_9} t_{I_{10}, K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{12} | \hat{0}^+_{\alpha} | K_0 \rangle \langle L_9 | \hat{0}^-_{\alpha} | L_0 \rangle t_{A_9, K_{12}} t_{B_{11}, I_{10}} t_{J_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^K | \hat{g} | 0^K 0^L \rangle \langle I_{10} | \hat{1}^-_{\alpha} | I_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{14},K_{14},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{14},L_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{14},L_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{14},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{12},K_{14},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{12}}t_{K_{14},L_{7}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{14},L_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{12}, K_{12}, L_{10})\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},B_{11}}t_{I_{10},J_{12}}t_{K_{12},L_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},B_{11}}t_{I_{10},J_{12}}t_{K_{12},L_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},B_{11}}t_{I_{10},K_{12}}t_{J_{12},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},B_{11}}t_{I_{10},K_{12}}t_{J_{12},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{12},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\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_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{12},L_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{10},K_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\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_{9},K_{12}}t_{B_{11},L_{10}}t_{I_{10},K_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\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_{9},K_{12}}t_{B_{11},L_{10}}t_{I_{10},K_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_$$

$$\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_8,J_{14},K_{14},L_8)\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{14},L_{8}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{14},L_{8}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{14},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{14},L_{8}} \end{split}$$

$$\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{10},J_{12},K_{14},L_8)\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 0^{J} 1^{L} \rangle \langle I_{10} | \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle \langle L_{8} | \hat{1}_{\beta}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{10},J_{12}} t_{K_{14},L_{8}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 0^{J} 1^{L} \rangle \langle I_{10} | \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle \langle L_{8} | \hat{1}_{\beta}^{-} | L_{0} \rangle t_{A_{9},J_{12}} t_{B_{11},I_{10}} t_{K_{14},L_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_{12}, K_{11}, L_9)\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{12}}t_{K_{11},L_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{12}}t_{K_{11},L_{9}} \end{split}$$

$$\begin{split} &+\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_{9},B_{11}}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_{9},B_{11}}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_{9},J_{12}}t_{B_{11},I_{9}}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_{9},J_{12}}t_{B_{11},I_{9}}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_{9},J_{12}}t_{B_{11},L_{9}}t_{I_{9},K_{11}}\\ &+\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_{9},K_{11}}t_{B_{11},I_{9}}t_{I_{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_{9},K_{11}}t_{B_{11},I_{9}}t_{I_{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_{9},K_{11}}t_{B_{11},L_{9}}t_{I_{9},J_{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_{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_{9},K_{11}}t_{B_{11},L_{9}}t_{I_{9},J_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}0^{J}|\hat{g}|1^{K}0^$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{14}, K_{13}, L_7)\rangle =$

$$\begin{split} & + \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{K} | \hat{g} | 0^{J} 0^{L} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{7} | \hat{0}_{\beta}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{7},J_{14}} t_{K_{13},L_{7}} \\ & + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{K} 0^{L} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{7} | \hat{0}_{\beta}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{7},J_{14}} t_{K_{13},L_{7}} \\ & + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{K} | \hat{g} | 0^{J} 0^{L} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{7} | \hat{0}_{\beta}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{7},K_{13}} t_{J_{14},L_{7}} \\ & + \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{K} 0^{L} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{7} | \hat{0}_{\beta}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{7},K_{13}} t_{J_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{12},K_{13},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{12}}t_{K_{13},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{12},K_{11},L_{10})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{12}}t_{K_{11},L_{10}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{12}}t_{K_{11},L_{10}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{11}}t_{J_{12},L_{10}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{11}}t_{J_{12},L_{10}} \end{split}$$

$$\begin{split} &+\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_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{11},L_{10}}\\ &+\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_{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_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{11},L_{10}}\\ &+\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_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{9},K_{11}}\\ &+\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_{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_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{12},L_{10}}\\ &+\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_{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_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{12},L_{10}}\\ &+\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_{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_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{12},L_{10}}\\ &+\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_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{9},J_{12}}\\ &+\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_{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_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{9},J_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}0^{J}|\hat{g}|1^{K}1^{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_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{9},J_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{L}\sum_{L}\langle 0^{I}0^{J}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{14},K_{13},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{13},L_{8}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{13},L_{8}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{14},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_{12},K_{13},L_8)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^K |\hat{g}|0^J 1^L \rangle \langle I_9|\hat{0}_{\alpha}^- |I_0\rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0\rangle \langle K_{13}|\hat{1}_{\beta}^+ |K_0\rangle \langle L_8|\hat{1}_{\beta}^- |L_0\rangle t_{A_9,B_{11}} t_{I_9,J_{12}} t_{K_{13},L_8} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^K |\hat{g}|0^J 1^L \rangle \langle I_9|\hat{0}_{\alpha}^- |I_0\rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0\rangle \langle K_{13}|\hat{1}_{\beta}^+ |K_0\rangle \langle L_8|\hat{1}_{\beta}^- |L_0\rangle t_{A_9,J_{12}} t_{B_{11},I_9} t_{K_{13},L_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},B_{11}}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_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{11},L_{9}} \\ &+ \frac{1}{48}\sum_{I}\sum_{L}\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_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{11},L_{9}} \\ &+ \frac{1}{48}\sum_{I}\sum_{L}\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_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{11},L_{9}} \\ &+ \frac{1}{48}\sum_{I}\sum_{L}\sum_{L}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{L}\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle I_{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_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{11},L_{9}} \\ &+ \frac{1}{48}\sum_{L}\sum_{L}\sum_{L}\langle 1^{L}0^{J}|\hat{g}|1^{L}0^{L}\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle I_{110}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle I_{110}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle I_{110}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle I_{111}$$

$$\begin{split} &+\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_{9},J_{12}}t_{B_{11},L_{9}}t_{I_{10},K_{11}}\\ &+\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_{9},J_{12}}t_{B_{11},L_{9}}t_{I_{10},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_{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_{9},K_{11}}t_{B_{11},I_{10}}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_{9},K_{11}}t_{B_{11},I_{10}}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_{9},K_{11}}t_{B_{11},L_{9}}t_{I_{10},J_{12}}\\ &+\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_{9},K_{11}}t_{B_{11},L_{9}}t_{I_{10},J_{12}}\\ &+\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_{9},K_{11}}t_{B_{11},L_{9}}t_{I_{10},J_{12}}\\ &+\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_{9},K_{11}}t_{B_{11},L_{9}}t_{I_{10},J_{12}}\\ &+\frac{1}{48}\sum_{L}\sum_{L}\sum_{L}\langle 1^{L}0^{J}|\hat{g}|1^{L}0^{L}|\hat{g}|1^{L}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle I_{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\langle I_{10}|\hat{0}_{\alpha}^{-}|L_{0}\rangle\langle I_{10}|\hat{0}_{\alpha}^{-}|L_{0}\rangle\langle I_{10}|\hat{0}_{\alpha}^{-}|L_{0}\rangle$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{14}, K_{13}, L_7)\rangle =$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{13},L_{7}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{13},L_{7}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{14},L_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{14},L_{7}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{12}, K_{13}, L_7)\rangle =$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{K} | \hat{g} | 0^{J} 0^{L} \rangle \langle I_{10} | \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{7} | \hat{0}_{\beta}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{10},J_{12}} t_{K_{13},L_{7}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{K} | \hat{g} | 0^{J} 0^{L} \rangle \langle I_{10} | \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{7} | \hat{0}_{\beta}^{-} | L_{0} \rangle t_{A_{9},J_{12}} t_{B_{11},I_{10}} t_{K_{13},L_{7}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{12}, K_{11}, L_{10})\rangle =$

$$\begin{split} &+\frac{-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_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{12}}t_{K_{11},L_{10}}\\ &+\frac{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_{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_{9},B_{11}}t_{I_{10},J_{12}}t_{K_{11},L_{10}}\\ &+\frac{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_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{11}}t_{J_{12},L_{10}}\\ &+\frac{-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_{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_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{11},L_{10}}\\ &+\frac{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_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{11},L_{10}}\\ &+\frac{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_{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_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{11},L_{10}}\\ &+\frac{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_{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_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{10},K_{11}}\\ &+\frac{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_{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_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{10},K_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{L}\sum_{L}\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_{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_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{10},K_{11}}\\ &+\frac{1}{48}\sum_{L}\sum_{L}\sum_{L$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{12},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{12},L_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{10},J_{12}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{14},K_{13},L_{8})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle \langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{13},L_{8}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{K} \langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle \langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{13},L_{8}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{K} \langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle \langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{14},L_{8}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle \langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{12},K_{13},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{12}}t_{K_{13},L_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,J_{11}}t_{B_{11},I_9}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_9,J_{11}}t_{B_{11},L_9}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_9,J_{11}}t_{B_{11},L_9}t_{I_9,K_{12}} \\ &+\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_9,J_{11}}t_{B_{11},L_9}t_{I_9,K_{12}} \\ &+\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_9,K_{12}}t_{B_{11},I_9}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_9,K_{12}}t_{B_{11},I_9}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$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},L_{9}}t_{I_{9},J_{11}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},L_{9}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{13},K_{14},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{14},L_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{14},L_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{13},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{11},K_{14},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{11}}t_{K_{14},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_{11}, K_{12}, L_{10})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_9, J_{11}} t_{K_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_9, J_{11}} t_{K_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_9, K_{12}} t_{J_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_9, K_{12}} t_{J_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{11}} t_{B_{11}, I_9} t_{K_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{11}} t_{B_{11}, I_9} t_{K_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{11}} t_{B_{11}, L_{10}} t_{I_9, K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, K_{12}} t_{B_{11}, L_{10}} t_{I_9, K_{12}} \\ &+ \frac{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}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{13},K_{14},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{14},L_{8}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{14},L_{8}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{13},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{11},K_{14},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{11}}t_{K_{14},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{11}, K_{12}, L_9)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{12} | \hat{0}_\alpha^+ | K_0 \rangle \langle L_9 | \hat{0}_\alpha^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{10}, J_{11}} t_{K_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J | \hat{g} | 0^K 0^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_9, B_{11}} t_{I_{10}, J_{11}} t_{K_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{12} | \hat{0}_\alpha^+ | K_0 \rangle \langle L_9 | \hat{0}_\alpha^- | L_0 \rangle t_{A_9, B_{11}} t_{I_{10}, K_{12}} t_{J_{11}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J | \hat{g} | 0^K 0^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_9, B_{11}} t_{I_{10}, K_{12}} t_{J_{11}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J | \hat{g} | 0^K 0^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_9, J_{11}} t_{B_{11}, I_{10}} t_{K_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J | \hat{g} | 0^K 0^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_9, J_{11}} t_{B_{11}, I_{10}} t_{K_{12}, L_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J | \hat{g} | 0^K 0^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_9, J_{11}} t_{B_{11}, L_9} t_{I_{10}, K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J | \hat{g} | 0^K 0^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_9, K_{12}} t_{B_{11}, I_10} 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_{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 |$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{13},K_{14},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{14},L_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{14},L_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{13},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{11},K_{14},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{11}}t_{K_{14},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7},L_{7}}t_{A_{14},L_{7},L_{7},L_{7}}t_{A_{14},L_{7},L_{7}}t_{A_{14},L_{7},L_{7},L_{7}}t_$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{11}, K_{12}, L_{10})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, J_{11}} t_{K_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_9, B_{11}} t_{I_{10}, J_{11}} t_{K_{12}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_9, B_{11}} t_{I_{10}, K_{12}} t_{J_{11}, L_{10}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \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_9, B_{11}} t_{I_{10}, K_{12}} t_{J_{11}, L_{10}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \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_9, J_{11}} t_{B_{11}, I_{10}} t_{K_{12}, L_{10}} \\ &+ \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_{12} | \hat{0}_\alpha^+ | K_0 \rangle \langle L_{10} | \hat{1}_\alpha^- | L_0 \rangle t_{A_9, J_{11}} t_{B_{11}, I_{10}} t_{K_{12}, L_{10}} \\ &+ \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_{12} | \hat{0}_\alpha^+ | K_0 \rangle \langle L_{10} | \hat{1}_\alpha^- | L_0 \rangle t_{A_9, J_{11}} t_{B_{11}, L_{10}} t_{I_{10}, K_{12}} \\ &+ \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_{12} | \hat{0}_\alpha^+ | K_0 \rangle \langle L_{10} | \hat{1}_\alpha^- | L_0 \rangle t_{A_9, K_{12}} t_{B_{11}, L_{10}} t_{I_{10}, K_{12}} \\ &+ \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} |$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_8,J_{13},K_{14},L_8)\rangle = \\ &+ \frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^K |\hat{g}|1^J 1^L \rangle \langle I_8 |\hat{1}^-_{\beta} |I_0\rangle \langle J_{13} |\hat{1}^+_{\beta} |J_0\rangle \langle K_{14} |\hat{0}^+_{\beta} |K_0\rangle \langle L_8 |\hat{1}^-_{\beta} |L_0\rangle t_{A_9,B_{11}} t_{I_8,J_{13}} t_{K_{14},L_8} \end{split}$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{14},L_{8}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{13},L_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{11},K_{14},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{11}}t_{K_{14},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}t_{K_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_{11},K_{11},L_9)\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K} \langle 0^I 1^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_{11}|\hat{1}_\alpha^+ |K_0\rangle \langle L_9|\hat{0}_\alpha^- |L_0\rangle t_{A_9,B_{11}}t_{I_9,J_{11}}t_{K_{11},L_9} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K} \langle 0^I 1^J |\hat{g}|1^K 0^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_9,B_{11}}t_{I_9,J_{11}}t_{K_{11},L_9} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K} \langle 0^I 1^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_{11}|\hat{1}_\alpha^+ |K_0\rangle \langle L_9|\hat{0}_\alpha^- |L_0\rangle t_{A_9,B_{11}}t_{I_9,K_{11}}t_{J_{11},L_9} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K} \langle 0^I 1^J |\hat{g}|1^K 0^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_9,B_{11}}t_{I_9,K_{11}}t_{J_{11},L_9} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K} \langle 0^I 1^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_{11}|\hat{1}_\alpha^+ |K_0\rangle \langle L_9|\hat{0}_\alpha^- |L_0\rangle t_{A_9,J_{11}}t_{B_{11},I_9}t_{K_{11},L_9} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K} \langle 0^I 1^J |\hat{g}|1^K 0^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_9,J_{11}}t_{B_{11},I_9}t_{K_{11},L_9} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K} \langle 0^I 1^J |\hat{g}|1^K 0^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_9,J_{11}}t_{B_{11},L_9}t_{I_9,K_{11}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K} \langle 0^I 1^J |\hat{g}|1^K 0^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_9,K_{11}}t_{B_{11},I_9}t_{J_{11},L_9} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K} \langle 0^I 1^J |\hat{g}|1^K 0^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_9,K_{11}}t_{B_{11},I_9}t_{J_{11},L_9} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L} \langle 0^I 1^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_{11}|\hat{1}_\alpha^+ |K_0\rangle \langle L_9|\hat{0}_\alpha^- |L_0\rangle t_{A_9,K_{11}}t_{B_{11},I_9}t_{J_{11},L_9} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\sum_{L} \langle 0^$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{13},K_{13},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{13},L_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{13},L_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{13},L_{7}} \end{split}$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 1^{K} 0^{L} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{7} | \hat{0}_{\beta}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{7},K_{13}} t_{J_{13},L_{7}} t$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{11},K_{13},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{11}}t_{K_{13},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_{11}, K_{11}, L_{10})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{11} | \hat{1}_\alpha^+ | K_0 \rangle \langle L_{10} | \hat{1}_\alpha | L_0 \rangle t_{A_9, B_{11}} t_{I_9, J_{11}} t_{K_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J | \hat{g} | 1^K 1^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_9, B_{11}} t_{I_9, J_{11}} t_{K_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{11} | \hat{1}_\alpha^+ | K_0 \rangle \langle L_{10} | \hat{1}_\alpha^- | L_0 \rangle t_{A_9, B_{11}} t_{I_9, J_{11}} t_{K_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J | \hat{g} | 1^K 1^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_9, B_{11}} t_{I_9, K_{11}} t_{J_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J | \hat{g} | 1^K 1^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_9, J_{11}} t_{B_{11}, I_9} t_{K_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J | \hat{g} | 1^K 1^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_9, J_{11}} t_{B_{11}, I_9} t_{K_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^J | \hat{g} | 1^K 1^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_9, J_{11}} t_{B_{11}, L_{10}} t_{I_9, K_{11}} \\ &+ \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_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_9, K_{11}} t_{B_{11}, L_{10}} t_{I_9, K_{11}} \\ &+ \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_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{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{13},K_{13},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{13},L_{8}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{13},L_{8}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{13},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{11},K_{13},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{11}}t_{K_{13},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{13},L_{8}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{11}, K_{11}, L_9)\rangle = \\ + \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_{10},J_{11}} t_{K_{11},L_9} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_{10},J_{11}} t_{K_{11},L_9} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_{10},K_{11}} t_{J_{11},L_9} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_{10},K_{11}} t_{J_{11},L_9} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,J_{11}} t_{B_{11},I_{10}} t_{K_{11},L_9} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,J_{11}} t_{B_{11},I_{10}} t_{K_{11},L_9} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,J_{11}} t_{B_{11},I_9} t_{I_{10},K_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,K_{11}} t_{B_{11},I_0} 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_9,K_{11}} t_{B_{11},I_0} 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$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{13},K_{13},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{13},L_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{13},L_{7}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{13},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{13},L_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{11}, K_{13}, L_7)\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{10} | \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{7} | \hat{0}_{\beta}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{10},J_{11}} t_{K_{13},L_{7}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{10} | \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{7} | \hat{0}_{\beta}^{-} | L_{0} \rangle t_{A_{9},J_{11}} t_{B_{11},I_{10}} t_{K_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{11}, K_{11}, L_{10})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, J_{11}} t_{K_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, J_{11}} t_{K_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, K_{11}} t_{J_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, K_{11}} t_{J_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{11}} t_{B_{11}, I_{10}} t_{K_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{11}} t_{B_{11}, I_{10}} t_{K_{11}, L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_9, J_{11}} t_{B_{11}, L_{10}} t_{I_{10}, K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_9, J_{11}} t_{B_{11}, L_{10}} t_{I_{10}, K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{13},K_{13},L_{8})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle \langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{13},L_{8}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{K} \langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle \langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{13},L_{8}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle \langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{13},L_{8}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle \langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{11},K_{13},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{11}}t_{K_{13},L_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}t_{K_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{12},K_{14},L_{9})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle \langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{12},L_{9}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle \langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{9}}t_{I_{7},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{12},K_{14},L_{9})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle \langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{12},L_{9}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle \langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{9}}t_{I_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{12},K_{14},L_{10})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{12},L_{10}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{7},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{12},K_{14},L_{10})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{12},L_{10}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{12},K_{13},L_{9})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{12},L_{9}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{9}}t_{I_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_8,J_{12},K_{13},L_9)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J |\hat{g}| 1^K 0^L \rangle \langle I_8 |\hat{1}^-_{\beta} |I_0\rangle \langle J_{12} |\hat{0}^+_{\alpha} |J_0\rangle \langle K_{13} |\hat{1}^+_{\beta} |K_0\rangle \langle L_9 |\hat{0}^-_{\alpha} |L_0\rangle t_{A_9,B_{11}} t_{I_8,K_{13}} t_{J_{12},L_9} \end{split}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 1^{K} 0^{L} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{13} | \hat{1}_{\beta}^{+} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9}, J_{12}} t_{B_{11}, L_{9}} t_{I_{8}, K_{13}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{12}, K_{13}, L_{10})\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{12},L_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{7},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{12}, K_{13}, L_{10})\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{12},L_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{L}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},L_{10}}t_{I_{8},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{11}, K_{14}, L_9)\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{11},L_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},L_{9}}t_{I_{7},K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{11}, K_{14}, L_9)\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{11},L_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},L_{9}}t_{I_{8},K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{11}, K_{14}, L_{10})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 0^{K} 1^{L} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{7},K_{14}} t_{J_{11},L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{L} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 0^{K} 1^{L} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},J_{11}} t_{B_{11},L_{10}} t_{I_{7},K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{11}, K_{14}, L_{10})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{K} 1^{L} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{8},K_{14}} t_{J_{11},L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{K} 1^{L} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},J_{11}} t_{B_{11},L_{10}} t_{I_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{11},K_{13},L_{9})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{11},L_{9}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},L_{9}}t_{I_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{11},K_{13},L_{9})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{11},L_{9}}\\ &+ \frac{1}{48}\sum_{I}\sum_{L}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},L_{9}}t_{I_{8},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{11},K_{13},L_{10})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{11},L_{10}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},L_{10}}t_{I_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{11},K_{13},L_{10})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{11},L_{10}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},L_{10}}t_{I_{8},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{12},K_{9},L_{12})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{12}}t_{K_{9},L_{12}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{12}}t_{K_{9},L_{12}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{12}}t_{J_{12},K_{9}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{12}}t_{J_{12},K_{9}} \end{split}$$

$$\begin{split} &+\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_{9},J_{12}}t_{B_{11},I_{9}}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_{9},J_{12}}t_{B_{11},I_{9}}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_{9},J_{12}}t_{B_{11},K_{9}}t_{I_{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_{9},J_{12}}t_{B_{11},K_{9}}t_{I_{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_{9},L_{12}}t_{B_{11},I_{9}}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_{9},L_{12}}t_{B_{11},I_{9}}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_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{9},J_{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_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{9},J_{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_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{9},J_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{9$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{14}, K_7, L_{14})\rangle =$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{7},L_{14}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{7},L_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{14},K_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{14},K_{7}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_{12}, K_7, L_{14})\rangle =$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{12}}t_{K_{7},L_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{7},L_{14}} \end{split}$$

 $\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_{12},K_{10},L_{12})\rangle =$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{12}}t_{K_{10},L_{12}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{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_{9},B_{11}}t_{I_{9},J_{12}}t_{K_{10},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{12}}t_{J_{12},K_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{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_{9},B_{11}}t_{I_{9},L_{12}}t_{J_{12},K_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{10},L_{12}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{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_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{10},L_{12}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{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_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{10},L_{12}}\\ &+\frac{-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_{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_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{10},L_{12}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}0^{J}|\hat{g}|0^{L}1^{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_{9},J_{12}}t_{B_{11},I_{9}}t_{A_{10},L_{12}}\\ &+\frac{-1}{48}\sum_{L}\sum_{L}\sum_{L}\langle 0^{I}0$$

$$\begin{split} &+\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_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{10}}t_{I_{9},L_{12}}\\ &+\frac{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_{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_{9},J_{12}}t_{B_{11},K_{10}}t_{I_{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_{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_{9},L_{12}}t_{B_{11},I_{9}}t_{J_{12},K_{10}}\\ &+\frac{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_{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_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{9},J_{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_{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_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{9},J_{12}}\\ &+\frac{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_{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_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{9},J_{12}}\\ &+\frac{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_{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_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{9},J_{12}}\\ &+\frac{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_{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_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{9},J_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}0^{J}|\hat{g}|0^{L}1^{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_{9},L_{12}}t_{B_{11},K_{10}}\\ &+\frac{1}{48}\sum_{L}\sum_{L}\sum_{L}\langle 0^{I}0^{L}0^{L}|\hat{g}|0^{L}0$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{14}, K_8, L_{14})\rangle =$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{8},L_{14}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{8},L_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{14},K_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{14},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{12},K_{8},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{12}}t_{K_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{L}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{8},L_{14}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{12}, K_9, L_{12})\rangle =$

$$\begin{split} &+\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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{12}}t_{K_{9},L_{12}}\\ &+\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_{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_{9},B_{11}}t_{I_{10},J_{12}}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_{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_{9},B_{11}}t_{I_{10},L_{12}}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_{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_{9},B_{11}}t_{I_{10},L_{12}}t_{J_{12},K_{9}}\\ &+\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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{10}}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_{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_{9},J_{12}}t_{B_{11},I_{10}}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_{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_{9},J_{12}}t_{B_{11},K_{9}}t_{I_{10},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_{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_{9},J_{12}}t_{B_{11},K_{9}}t_{I_{10},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{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_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{9}}t_{I_{10},L_{12}}\\ &+\frac{1}{48}\sum_{L}\sum_{L}\sum_{L}\langle 1^{L}0^{L}0^{L}|$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{10}}t_{J_{12},K_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{10}}t_{J_{12},K_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{10},J_{12}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{14},K_{7},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{7},L_{14}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{7},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{14},K_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{I}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{10},J_{12},K_7,L_{14})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^K |\hat{g}|0^J 0^L \rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0\rangle \langle K_7|\hat{0}_{\beta}^- |K_0\rangle \langle L_{14}|\hat{0}_{\beta}^+ |L_0\rangle t_{A_9,B_{11}} t_{I_{10},J_{12}} t_{K_7,L_{14}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^K |\hat{g}|0^J 0^L \rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0\rangle \langle K_7|\hat{0}_{\beta}^- |K_0\rangle \langle L_{14}|\hat{0}_{\beta}^+ |L_0\rangle t_{A_9,J_{12}} t_{B_{11},I_{10}} t_{K_7,L_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}t_{I_{10},J_{12}}t_{K_{10},L_{12}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\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_9,B_{11}}t_{I_{10},J_{12}}t_{K_{10},L_{12}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\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_9,B_{11}}t_{I_{10},L_{12}}t_{J_{12},K_{10}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\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_9,B_{11}}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_9,J_{12}}t_{B_{11},I_{10}}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_9,J_{12}}t_{B_{11},I_{10}}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_9,J_{12}}t_{B_{11},K_{10}}t_{I_{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_9,J_{12}}t_{B_{11},K_{10}}t_{I_{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_9,J_{12}}t_{B_{11},K_{10}}t_{I_{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_9,J_{12}}t_{B_{11},K_{10}}t_{I_{10},L_{12},K_{10}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{10},J_{12}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{14},K_{8},L_{14})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{8},L_{14}} \\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{8},L_{14}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{14},K_{8}} \\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{14},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{12},K_{8},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{12}}t_{K_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{8},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})| \hat{H} | (A_9, B_{11}, I_9, J_{12}, K_9, L_{11}) \rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} 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_9, B_{11}} 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_9, B_{11}} 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_9, B_{11}} 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_9, J_{12}} t_{B_{11}, I_9} 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_9, J_{12}} t_{B_{11}, I_9} 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_9, J_{12}} t_{B_{11}, K_9} t_{I_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_9, L_{11}} t_{B_{11}, I_9} t_{J_2, 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_9, L_{11}} t_{B_{11}, K_9} t_{I_9,$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{14},K_{7},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{7},L_{13}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{7},L_{13}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{14},K_{7}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{12},K_{7},L_{13})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle \langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{12}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle \langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})| \hat{H}|(A_9, B_{11}, I_9, J_{12}, K_{10}, L_{11})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{10} | \hat{1}_\alpha^- | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_9, J_{12}} t_{K_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 1^L 1^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_9, B_{11}} t_{I_9, J_{12}} t_{K_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{10} | \hat{1}_\alpha^- | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_9, L_{11}} t_{J_{12}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 1^L 1^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_9, B_{11}} t_{I_9, L_{11}} t_{J_{12}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_{10} | \hat{1}_\alpha^- | K_0 \rangle \langle L_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_9, J_{12}} t_{B_{11}, I_9} t_{K_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 1^L 1^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_9, J_{12}} t_{B_{11}, I_9} t_{K_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 1^L 1^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_9, J_{12}} t_{B_{11}, K_{10}} t_{I_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J | \hat{g} | 1^L 1^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_9, L_{11}} t_{B_{11}, K_{10}} t_{I_9, L_{11}} \\ &+ \frac{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_{12} | \hat{0}_\alpha^+ | J_0 \rangle \langle K_{10} | \hat{1}_\alpha^- | K_0 \rangle \langle L_{11}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{14},K_{8},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{8},L_{13}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{8},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{14},K_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{14},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{12},K_{8},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{12}}t_{K_{8},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{9}}t_{K_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{12}, K_9, L_{11})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, J_{12}} t_{K_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, J_{12}} t_{K_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, L_{11}} t_{J_{12}, K_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, L_{11}} t_{J_{12}, K_9} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{12}} t_{B_{11}, I_{10}} t_{K_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{12}} t_{B_{11}, I_{10}} t_{K_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{12}} t_{B_{11}, K_9} t_{I_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, L_{11}} t_{B_{11}, I_9} t_{I_{10}, L_{11}} \\ &+ \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_9 | \hat{0}_\alpha^- | K_0 \rangle \langle L_{11} |$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{14}, K_7, L_{13})\rangle =$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^K | \hat{g} | 0^J 1^L \rangle \langle I_8 | \hat{1}^-_{\beta} | I_0 \rangle \langle J_{14} | \hat{0}^+_{\beta} | J_0 \rangle \langle K_7 | \hat{0}^-_{\beta} | K_0 \rangle \langle L_{13} | \hat{1}^+_{\beta} | L_0 \rangle t_{A_9, B_{11}} t_{I_8, J_{14}} t_{K_7, L_{13}}$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^{I} 0^{J} | \hat{g} | 1^{L} 0^{K} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle \langle L_{13} | \hat{1}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{8},J_{14}} t_{K_{7},L_{13}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 0^{J} 1^{L} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle \langle L_{13} | \hat{1}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{8},L_{13}} t_{J_{14},K_{7}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 1^{L} 0^{K} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle \langle L_{13} | \hat{1}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{8},L_{13}} t_{J_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{12},K_{7},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{12}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{12}, K_{10}, L_{11})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle \mathbf{1}^I \mathbf{1}^K | \hat{g} | \mathbf{0}^J \mathbf{1}^L \rangle \langle I_{10} | \hat{\mathbf{1}}^-_{\alpha} | I_0 \rangle \langle J_{12} | \hat{\mathbf{0}}^+_{\alpha} | J_0 \rangle \langle K_{10} | \hat{\mathbf{1}}^-_{\alpha} | K_0 \rangle \langle L_{11} | \hat{\mathbf{1}}^+_{\alpha} | L_0 \rangle t_{A_9, B_{11}} t_{I_{10}, J_{12}} t_{K_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle \mathbf{1}^I \mathbf{0}^J | \hat{g} | \mathbf{1}^L \mathbf{1}^K \rangle \langle I_{10} | \hat{\mathbf{1}}^-_{\alpha} | I_0 \rangle \langle J_{12} | \hat{\mathbf{0}}^+_{\alpha} | J_0 \rangle \langle K_{10} | \hat{\mathbf{1}}^-_{\alpha} | K_0 \rangle \langle L_{11} | \hat{\mathbf{1}}^+_{\alpha} | L_0 \rangle t_{A_9, B_{11}} t_{I_{10}, J_{12}} t_{K_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle \mathbf{1}^I \mathbf{1}^K | \hat{g} | \mathbf{0}^J \mathbf{1}^L \rangle \langle I_{10} | \hat{\mathbf{1}}^-_{\alpha} | I_0 \rangle \langle J_{12} | \hat{\mathbf{0}}^+_{\alpha} | J_0 \rangle \langle K_{10} | \hat{\mathbf{1}}^-_{\alpha} | K_0 \rangle \langle L_{11} | \hat{\mathbf{1}}^+_{\alpha} | L_0 \rangle t_{A_9, B_{11}} t_{I_{10}, L_{11}} t_{J_{12}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle \mathbf{1}^I \mathbf{0}^J | \hat{g} | \mathbf{1}^L \mathbf{1}^K \rangle \langle I_{10} | \hat{\mathbf{1}}^-_{\alpha} | I_0 \rangle \langle J_{12} | \hat{\mathbf{0}}^+_{\alpha} | J_0 \rangle \langle K_{10} | \hat{\mathbf{1}}^-_{\alpha} | K_0 \rangle \langle L_{11} | \hat{\mathbf{1}}^+_{\alpha} | L_0 \rangle t_{A_9, B_{11}} t_{I_{10}, L_{11}} t_{J_{12}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle \mathbf{1}^I \mathbf{1}^K | \hat{g} | \mathbf{0}^J \mathbf{1}^L \rangle \langle I_{10} | \hat{\mathbf{1}}^-_{\alpha} | I_0 \rangle \langle J_{12} | \hat{\mathbf{0}}^+_{\alpha} | J_0 \rangle \langle K_{10} | \hat{\mathbf{1}}^-_{\alpha} | K_0 \rangle \langle L_{11} | \hat{\mathbf{1}}^+_{\alpha} | L_0 \rangle t_{A_9, J_{12}} t_{B_{11}, I_{10}} t_{K_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle \mathbf{1}^I \mathbf{1}^K | \hat{g} | \mathbf{0}^J \mathbf{1}^L \rangle \langle I_{10} | \hat{\mathbf{1}}^-_{\alpha} | I_0 \rangle \langle J_{12} | \hat{\mathbf{0}}^+_{\alpha} | J_0 \rangle \langle K_{10} | \hat{\mathbf{1}}^-_{\alpha} | K_0 \rangle \langle L_{11} | \hat{\mathbf{1}}^+_{\alpha} | L_0 \rangle t_{A_9, J_{12}} t_{B_{11}, K_{10}} t_{I_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle \mathbf{1}^I \mathbf{1}^K | \hat{g} | \mathbf{0}^J \mathbf{1}^L \rangle \langle I_{10} | \hat{\mathbf{1}}^-_{\alpha} | I_0 \rangle \langle J_{12} | \hat{\mathbf{0}}^+_{\alpha} | J_0 \rangle \langle K_{10} | \hat{\mathbf{1}}^-_{\alpha} | K_0 \rangle \langle L_{11} | \hat{\mathbf{1}}^+_{\alpha} | L_0 \rangle t_{A_9, J_{12}} t_{B_{11}, K_{10}} t_{I_{10}, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle \mathbf{1}^I \mathbf{1}^K | \hat{g} | \mathbf{0}^J \mathbf{1}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_8,J_{14},K_8,L_{13})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^K |\hat{g}|0^J 1^L \rangle \langle I_8|\hat{1}^-_{\beta}|I_0\rangle \langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle \langle K_8|\hat{1}^-_{\beta}|K_0\rangle \langle L_{13}|\hat{1}^+_{\beta}|L_0\rangle t_{A_9,B_{11}} t_{I_8,J_{14}} t_{K_8,L_{13}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 0^J |\hat{g}|1^L 1^K \rangle \langle I_8|\hat{1}^-_{\beta}|I_0\rangle \langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle \langle K_8|\hat{1}^-_{\beta}|K_0\rangle \langle L_{13}|\hat{1}^+_{\beta}|L_0\rangle t_{A_9,B_{11}} t_{I_8,J_{14}} t_{K_8,L_{13}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^K |\hat{g}|0^J 1^L \rangle \langle I_8|\hat{1}^-_{\beta}|I_0\rangle \langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle \langle K_8|\hat{1}^-_{\beta}|K_0\rangle \langle L_{13}|\hat{1}^+_{\beta}|L_0\rangle t_{A_9,B_{11}} t_{I_8,L_{13}} t_{J_{14},K_8} \end{split}$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 1^{L} 1^{K} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{8} | \hat{1}_{\beta}^{-} | K_{0} \rangle \langle L_{13} | \hat{1}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{8},L_{13}} t_{J_{14},K_{8}} t$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{12},K_{8},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{12}}t_{K_{8},L_{13}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},I_{10}}t_{K_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_{11},K_9,L_{12})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,B_{11}}t_{I_9,J_{11}}t_{K_9,L_{12}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^I 1^J |\hat{g}| 0^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_{12}|\hat{0}_\alpha^+ |L_0\rangle t_{A_9,B_{11}}t_{I_9,J_{11}}t_{K_9,L_{12}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,B_{11}}t_{I_9,L_{12}}t_{J_{11},K_9} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^I 1^J |\hat{g}| 0^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_{12}|\hat{0}_\alpha^+ |L_0\rangle t_{A_9,B_{11}}t_{I_9,L_{12}}t_{J_{11},K_9} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,J_{11}}t_{B_{11},I_9}t_{K_9,L_{12}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,J_{11}}t_{B_{11},I_9}t_{K_9,L_{12}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,J_{11}}t_{B_{11},K_9}t_{I_9,L_{12}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,J_{11}}t_{B_{11},K_9}t_{I_9,L_{12}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,J_{11}}t_{B_{11},K_9}t_{I_9,J_{11}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_9,L_{12}}t_{B_{11},I_9}t_{J_{11},K_9} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^I 0^K |\hat{g}| 1^J 0^L \rangle \langle I$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{13},K_{7},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{7},L_{14}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{7},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{13},K_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{13},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{11},K_{7},L_{14})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle \langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{11}}t_{K_{7},L_{14}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle \langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle \langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{7},L_{14}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_{11}, K_{10}, L_{12})\rangle = \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 1^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_{10} | \hat{1}_\alpha^- | K_0 \rangle \langle L_{12} | \hat{0}_\alpha^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_9, J_{11}} t_{K_{10}, L_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_{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_9, B_{11}} t_{I_9, J_{11}} t_{K_{10}, L_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 1^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_{10} | \hat{1}_\alpha^- | K_0 \rangle \langle L_{12} | \hat{0}_\alpha^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_9, L_{12}} t_{J_{11}, K_{10}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_{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_9, B_{11}} t_{I_9, L_{12}} t_{J_{11}, K_{10}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 1^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_{10} | \hat{1}_\alpha^- | K_0 \rangle \langle L_{12} | \hat{0}_\alpha^+ | L_0 \rangle t_{A_9, J_{11}} t_{B_{11}, I_9} t_{K_{10}, L_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^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_{10} | \hat{1}_\alpha^- | K_0 \rangle \langle L_{12} | \hat{0}_\alpha^+ | L_0 \rangle t_{A_9, J_{11}} t_{B_{11}, K_{10}} t_{I_9, L_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^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_{10} | \hat{1}_\alpha^- | K_0 \rangle \langle L_{12} | \hat{0}_\alpha^+ | L_0 \rangle t_{A_9, J_{11}} t_{B_{11}, K_{10}} t_{I_9, L_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^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_{10} | \hat{1}_\alpha^- | K_0 \rangle \langle L_{12} | \hat{0}_\alpha^+ | L_0 \rangle t_{A_9, L_{12}} t_{B_{11}, I_9} t_{J_{11}, K_{10}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^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_{10} | \hat{1}_\alpha^- | K_0$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{13},K_{8},L_{14})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{8},L_{14}} \\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{8},L_{14}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{13},K_{8}} \\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{13},K_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_{11}, K_8, L_{14})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{11}}t_{K_{8},L_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{8},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,B_{11}}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_9,J_{11}}t_{B_{11},I_{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_{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_9,J_{11}}t_{B_{11},I_{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_{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_9,J_{11}}t_{B_{11},I_{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_{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_9,J_{11}}t_{B_{11},K_9}t_{I_{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_{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_9,J_{11}}t_{B_{11},K_9}t_{I_{10},L_{12}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{L}\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_9,J_{11}}t_{B_{11},K_9}t_{I_{10},L_{12}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{L}\sum_{L$$

 $+\frac{1}{48}\sum^{I}\sum^{J}\sum^{K}\sum^{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{10}}t_{J_{11},K_{9}}$

 $+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{L} 0^{K} \rangle \langle I_{10} | \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{12} | \hat{0}_{\alpha}^{+} | L_{0} \rangle t_{A_{9}, L_{12}} t_{B_{11}, I_{10}} t_{J_{11}, K_{9}} \rangle \langle I_{10} | \hat{I}_{\alpha}^{-} | I_{10} \rangle \langle I_{10} | \hat{I}_{\alpha}^{-} | I_{10} \rangle \langle I_{11} | \hat{I}_{\alpha}^{+} | I_{10} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{10} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{10} \rangle \langle I_{11} | \hat{I}_{11} \rangle \langle I_{11} | I_{11} \rangle \langle$

 $+\frac{1}{48}\sum^{I}\sum^{J}\sum^{K}\sum^{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{10},J_{11}}$

 $+\frac{-1}{48}\sum_{i}^{J}\sum_{j}^{K}\sum_{i}^{K}\sum_{j}^{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{10},J_{11}}$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{13},K_{7},L_{14})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{7},L_{14}} \\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{7},L_{14}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{13},K_{7}} \\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{13},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{11},K_{7},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{11}}t_{K_{7},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}t_{K_{7},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{11}, K_{10}, L_{12})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, J_{11}} t_{K_{10}, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, J_{11}} t_{K_{10}, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, L_{12}} t_{J_{11}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, L_{12}} t_{J_{11}, K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{11}} t_{B_{11}, I_{10}} t_{K_{10}, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{11}} t_{B_{11}, I_{10}} t_{K_{10}, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{11}} t_{B_{11}, K_{10}} t_{I_{10}, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, J_{11}} t_{B_{11}, K_{10}} t_{I_{10}, L_{10}} \\ &+ \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$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{13},K_{8},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{8},L_{14}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{13},K_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{13},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{11},K_{8},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{11}}t_{K_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}t_{K_{8},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})| \dot{H}| (A_9, B_{11}, I_9, J_{11}, K_9, L_{11}) \rangle = \\ &+ \frac{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_9, B_{11}} t_{I_9, J_{11}} t_{K_9, L_{11}} \\ &+ \frac{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_9, B_{11}} t_{I_9, J_{11}} t_{K_9, L_{11}} \\ &+ \frac{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_9, B_{11}} t_{I_9, L_{11}} t_{J_{11}, K_9} \\ &+ \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_{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_9, B_{11}} t_{I_9, L_{11}} t_{J_{11}, K_9} \\ &+ \frac{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_9, J_{11}} t_{B_{11}, I_9} t_{K_9, L_{11}} \\ &+ \frac{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_9, J_{11}} t_{B_{11}, I_9} t_{K_9, L_{11}} \\ &+ \frac{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_9, J_{11}} t_{B_{11}, K_9} t_{I_9, L_{11}} \\ &+ \frac{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_9, L_{11}} t_{B_{11}, I_9} t_{J_1, K_9} t_{I_9, J_{11}} \\ &+ \frac{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_{11} | \hat{1}_\alpha^+ | L_0 \rangle t_{A_9, L_{11}} t_{B$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{13},K_{7},L_{13})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{7},L_{13}} \\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{7},L_{13}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{13},K_{7}} \\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{13},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{11},K_{7},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{11}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{7},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_{11}, K_{10}, L_{11})\rangle =$$

$$+\frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^K | \hat{g} | 1^J 1^L \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle \langle K_{10} | \hat{1}_{\alpha}^- | K_0 \rangle \langle L_{11} | \hat{1}_{\alpha}^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_9, J_{11}} t_{K_{10}, L_{11}}$$

$$\begin{split} &+\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_{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_{9},B_{11}}t_{I_{9},J_{11}}t_{K_{10},L_{11}}\\ &+\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_{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_{9},B_{11}}t_{I_{9},L_{11}}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_{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_{9},B_{11}}t_{I_{9},L_{11}}t_{J_{11},K_{10}}\\ &+\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_{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_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{10},L_{11}}\\ &+\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_{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_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{10},L_{11}}\\ &+\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_{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_{9},J_{11}}t_{B_{11},K_{10}}t_{I_{9},L_{11}}\\ &+\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_{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_{9},J_{11}}t_{B_{11},K_{10}}t_{I_{9},L_{11}}\\ &+\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_{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_{9},L_{11}}t_{B_{11},K_{10}}t_{I_{9},J_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{L}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}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_{9},L_{11}}t_{B_{11},K_{10}}\\ &+\frac{1}{48}\sum_{L}\sum_{L}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{L}1^{K}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{13}, K_8, L_{13})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{8},L_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{8},L_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{13},K_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{13},K_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_{11}, K_8, L_{13})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},J_{11}}t_{K_{8},L_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{9}}t_{K_{8},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{11}, K_9, L_{11})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{11}}t_{K_{9},L_{11}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{11}}t_{K_{9},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{11}}t_{J_{11},K_{9}} \end{split}$$

$$\begin{split} &+\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_{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_{9},B_{11}}t_{I_{10},L_{11}}t_{J_{11},K_{9}}\\ &+\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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}t_{K_{9},L_{11}}\\ &+\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_{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_{9},J_{11}}t_{B_{11},I_{10}}t_{K_{9},L_{11}}\\ &+\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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},K_{9}}t_{I_{10},L_{11}}\\ &+\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_{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_{9},J_{11}}t_{B_{11},K_{9}}t_{I_{10},L_{11}}\\ &+\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_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{10}}t_{J_{11},K_{9}}\\ &+\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_{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_{9},L_{11}}t_{B_{11},K_{9}}t_{I_{10},J_{11}}\\ &+\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_{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_{9},L_{11}}t_{B_{11},K_{9}}t_{I_{10},J_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{L}\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_{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_{9},L_{11}}t_{B_{11},K_{9}}t_{I_{10},J_{11}}\\ &+\frac{1}{48}\sum_{L}\sum_{L}\sum_{L}\langle 1^{I}1^{J}|\hat{g$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{13}, K_7, L_{13})\rangle =$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{7},L_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{7},L_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{13},K_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{13},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{11},K_{7},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{11}}t_{K_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}t_{K_{7},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{11}, K_{10}, L_{11})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{11}}t_{K_{10},L_{11}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{11}}t_{K_{10},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{11}}t_{J_{11},K_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{11}}t_{J_{11},K_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}t_{K_{10},L_{11}} \end{split}$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},J_{11}}t_{B_{11},I_{10}}t_{K_{10},L_{11}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},J_{11}}t_{B_{11},K_{10}}t_{I_{10},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},J_{11}}t_{B_{11},K_{10}}t_{I_{10},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},L_{11}}t_{B_{11},I_{10}}t_{J_{11},K_{10}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},L_{11}}t_{B_{11},K_{10}}t_{I_{10},J_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},L_{11}}t_{B_{11},K_{10}}t_{I_{10},J_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\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_{9},L_{11}}t_{B_{11},K_{10}}t_{I_{10},J_{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_{9},L_{11}}t_{B_{11},K_{10}}t_{I_{10},J_{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\langle L_{11}|1^{L}|L_{0}\rangle\langle L_{11}|1^{L}|L_{0}\rangle\langle L_{11}|1^{L}|L_{0}\rangle\langle L_{11}|1^{L}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{13}, K_8, L_{13})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{8},L_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{8},L_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{13},K_{8}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{13},K_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{11}, K_8, L_{13})\rangle =$$

$$+ \frac{1}{48} \sum \sum \sum \sum \langle 1^I 1^K |\hat{g}| 1^J 1^L \rangle \langle I_{10}| \hat{1}_{\alpha}^- |I_0\rangle \langle J_{11}| \hat{1}_{\alpha}^+ |J_0\rangle \langle K_8| \hat{1}_{\beta}^- |K_0\rangle \langle L_{13}| \hat{1}_{\beta}^+ |L_0\rangle t_{A_9, B_{11}}$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},J_{11}}t_{K_{8},L_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{L}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},I_{10}}t_{K_{8},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{12}, K_9, L_{14})\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{12},K_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{9}}t_{I_{7},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{12}, K_9, L_{14})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^{I} 0^{J} | \hat{g} | 0^{L} 0^{K} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{8},L_{14}} t_{J_{12},K_{9}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 0^{L} 0^{K} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},J_{12}} t_{B_{11},K_{9}} t_{I_{8},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{12},K_{10},L_{14})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{12},K_{10}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{10}}t_{I_{7},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{12},K_{10},L_{14})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{12},K_{10}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{10}}t_{I_{8},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{12},K_{9},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{12},K_{9}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{9}}t_{I_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{12},K_{9},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{12},K_{9}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{9}}t_{I_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{12},K_{10},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{12},K_{10}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{12}}t_{B_{11},K_{10}}t_{I_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_8,J_{12},K_{10},L_{13})\rangle = \\ &+ \frac{-1}{48} \sum_I \sum_J \sum_K \sum_L \langle 1^I 0^J |\hat{g}| 1^L 1^K \rangle \langle I_8 |\hat{1}^-_\beta |I_0\rangle \langle J_{12} |\hat{0}^+_\alpha |J_0\rangle \langle K_{10} |\hat{1}^-_\alpha |K_0\rangle \langle L_{13} |\hat{1}^+_\beta |L_0\rangle t_{A_9,B_{11}} t_{I_8,L_{13}} t_{J_{12},K_{10}} \end{split}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 1^{L} 1^{K} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{13} | \hat{1}_{\beta}^{+} | L_{0} \rangle t_{A_{9}, J_{12}} t_{B_{11}, K_{10}} t_{I_{8}, L_{13}} t_{B_{11}, K_{10}} t_{B_{11}, K_{10}, K_{10}} t_{B_{11}, K_{10}, K_{10}, K_{10}} t_{B_{11}, K_{10}, K_{10}, K_{10}, K_{10}} t_{B_{11}, K_{10}, K_{1$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{11}, K_9, L_{14})\rangle =$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{11},K_{9}}\\ +\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},K_{9}}t_{I_{7},L_{14}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{11}, K_9, L_{14})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^{I} 1^{J} | \hat{g} | 0^{L} 0^{K} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{8},L_{14}} t_{J_{11},K_{9}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{L} 0^{K} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},J_{11}} t_{B_{11},K_{9}} t_{I_{8},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{11}, K_{10}, L_{14})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 0^{L} 1^{K} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{7},L_{14}} t_{J_{11},K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 0^{L} 1^{K} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},J_{11}} t_{B_{11},K_{10}} t_{I_{7},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{11}, K_{10}, L_{14})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{L} 1^{K} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{8},L_{14}} t_{J_{11},K_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{L} 1^{K} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},J_{11}} t_{B_{11},K_{10}} t_{I_{8},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{11}, K_9, L_{13})\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{11},K_{9}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},K_{9}}t_{I_{7},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{11}, K_9, L_{13})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 1^{L} 0^{K} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{13} | \hat{1}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{8},L_{13}} t_{J_{11},K_{9}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 1^{L} 0^{K} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle \langle L_{13} | \hat{1}_{\beta}^{+} | L_{0} \rangle t_{A_{9},J_{11}} t_{B_{11},K_{9}} t_{I_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{11},K_{10},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{11},K_{10}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},K_{10}}t_{I_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{11},K_{10},L_{13})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{11},K_{10}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},J_{11}}t_{B_{11},K_{10}}t_{I_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{9},K_{12},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{9},K_{12}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_9,K_{12},L_8)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}| 1^L 0^K \rangle \langle I_{14}|\hat{0}^+_\beta |I_0\rangle \langle J_9|\hat{0}^-_\alpha |J_0\rangle \langle K_{12}|\hat{0}^+_\alpha |K_0\rangle \langle L_8|\hat{1}^-_\beta |L_0\rangle t_{A_9,B_{11}} t_{I_{14},L_8} t_{J_9,K_{12}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}| 1^L 0^K \rangle \langle I_{14}|\hat{0}^+_\beta |I_0\rangle \langle J_9|\hat{0}^-_\alpha |J_0\rangle \langle K_{12}|\hat{0}^+_\alpha |K_0\rangle \langle L_8|\hat{1}^-_\beta |L_0\rangle t_{A_9,K_{12}} t_{B_{11},J_9} t_{I_{14},L_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{10},K_{12},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{10}|\hat{1}^{-}_{\alpha}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{10},K_{12}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{10}|\hat{1}^{-}_{\alpha}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{10}}t_{I_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_{10},K_{12},L_8)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}| 1^L 0^K \rangle \langle I_{14} |\hat{0}^+_{\beta} |I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha} |J_0 \rangle \langle K_{12} |\hat{0}^+_{\alpha} |K_0 \rangle \langle L_8 |\hat{1}^-_{\beta} |L_0 \rangle t_{A_9,B_{11}} t_{I_{14},L_8} t_{J_{10},K_{12}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}| 1^L 0^K \rangle \langle I_{14} |\hat{0}^+_{\beta} |I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha} |J_0 \rangle \langle K_{12} |\hat{0}^+_{\alpha} |K_0 \rangle \langle L_8 |\hat{1}^-_{\beta} |L_0 \rangle t_{A_9,K_{12}} t_{B_{11},J_{10}} t_{I_{14},L_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{13},J_9,K_{12},L_7)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J |\hat{g}|0^L 0^K \rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_9|\hat{0}^-_{\alpha}|J_0\rangle \langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle \langle L_7|\hat{0}^-_{\beta}|L_0\rangle t_{A_9,B_{11}} t_{I_{13},L_7} t_{J_9,K_{12}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J |\hat{g}|0^L 0^K \rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_9|\hat{0}^-_{\alpha}|J_0\rangle \langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle \langle L_7|\hat{0}^-_{\beta}|L_0\rangle t_{A_9,K_{12}} t_{B_{11},J_9} t_{I_{13},L_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{9},K_{12},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{9},K_{12}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{10},K_{12},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{10},K_{12}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{10}}t_{I_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{10},K_{12},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{10},K_{12}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{10}}t_{I_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{9},K_{11},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{9},K_{11}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{9}}t_{I_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_9,K_{11},L_8)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}| 1^L 1^K \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_9|\hat{0}^-_{\alpha}|J_0 \rangle \langle K_{11}|\hat{1}^+_{\alpha}|K_0 \rangle \langle L_8|\hat{1}^-_{\beta}|L_0 \rangle t_{A_9,B_{11}} t_{I_{14},L_8} t_{J_9,K_{11}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}| 1^L 1^K \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_9|\hat{0}^-_{\alpha}|J_0 \rangle \langle K_{11}|\hat{1}^+_{\alpha}|K_0 \rangle \langle L_8|\hat{1}^-_{\beta}|L_0 \rangle t_{A_9,K_{11}} t_{B_{11},J_9} t_{I_{14},L_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{10},K_{11},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{10}|\hat{1}^{-}_{\alpha}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{7}}t_{J_{10},K_{11}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{10}|\hat{1}^{-}_{\alpha}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{10},K_{11},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{10}|\hat{1}^{-}_{\alpha}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},L_{8}}t_{J_{10},K_{11}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{10}|\hat{1}^{-}_{\alpha}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{8}|\hat{1}^{-}_{\beta}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{9},K_{11},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{9},K_{11}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{7}|\hat{0}^{-}_{\beta}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{9}}t_{I_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{13},J_9,K_{11},L_8)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J |\hat{g}| 1^L 1^K \rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_9|\hat{0}^-_{\alpha}|J_0\rangle \langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle \langle L_8|\hat{1}^-_{\beta}|L_0\rangle t_{A_9,B_{11}} t_{I_{13},L_8} t_{J_9,K_{11}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J |\hat{g}| 1^L 1^K \rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_9|\hat{0}^-_{\alpha}|J_0\rangle \langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle \langle L_8|\hat{1}^-_{\beta}|L_0\rangle t_{A_9,K_{11}} t_{B_{11},J_9} t_{I_{13},L_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{10},K_{11},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{7}}t_{J_{10},K_{11}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{10},K_{11},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},L_{8}}t_{J_{10},K_{11}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{7},K_{12},L_{9})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{9}|\hat{0}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{12},L_{9}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{9}|\hat{0}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},L_{9}}t_{I_{14},J_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{8},K_{12},L_{9})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{9}|\hat{0}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{12},L_{9}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{9}|\hat{0}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},L_{9}}t_{I_{14},J_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{7},K_{12},L_{10})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{12},L_{10}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},L_{10}}t_{I_{14},J_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{8},K_{12},L_{10})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{12},L_{10}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},L_{10}}t_{I_{14},J_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{13},J_7,K_{12},L_9)\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^K |\hat{g}|0^J 0^L \rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_7|\hat{0}^-_{\beta}|J_0\rangle \langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle \langle L_9|\hat{0}^-_{\alpha}|L_0\rangle t_{A_9,B_{11}} t_{I_{13},J_7} t_{K_{12},L_9} \end{split}$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 0^{J} 0^{L} \rangle \langle I_{13} | \hat{1}^{+}_{\beta} | I_{0} \rangle \langle J_{7} | \hat{0}^{-}_{\beta} | J_{0} \rangle \langle K_{12} | \hat{0}^{+}_{\alpha} | K_{0} \rangle \langle L_{9} | \hat{0}^{-}_{\alpha} | L_{0} \rangle t_{A_{9}, K_{12}} t_{B_{11}, L_{9}} t_{I_{13}, J_{7}} t_{A_{12}, L_{13}, J_{7}} t_{A_{12}, L_{13}, L_$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_8, K_{12}, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{9}|\hat{0}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{12},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{9}|\hat{0}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},L_{9}}t_{I_{13},J_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_7, K_{12}, L_{10})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{10}|\hat{1}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{12},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{10}|\hat{1}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},L_{10}}t_{I_{13},J_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_8, K_{12}, L_{10})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{10}|\hat{1}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{12},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{12}|\hat{0}^{+}_{\alpha}|K_{0}\rangle\langle L_{10}|\hat{1}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},L_{10}}t_{I_{13},J_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_7, K_{11}, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{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_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}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_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\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_{9},K_{11}}t_{B_{11},L_{9}}t_{I_{14},J_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{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_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{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_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{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_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\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_{9},K_{11}}t_{B_{11},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{L}\langle 0^{I}1^{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_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{9}}\\ &+\frac{-1}{48}\sum_{L}\langle 0^{I}1^{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_{11}|\hat{1}_{\alpha}^{+}|K_{11}\rangle\langle I_{11}|\hat{0}_{\alpha}^{-}|L_{11}\rangle\langle I_{11}|\hat{0}_{\alpha}^{-}|L_{11}\rangle\langle I_{11}|\hat{0}_{\beta}^{-}|I_{11}\rangle\langle I_{11}|I_{11}\rangle\langle I_{11}|I_{11}\rangle\langle I_{11}|I_{11}\rangle\langle I_{11}|I_{11}\rangle\langle I_{11}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_8, K_{11}, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{11},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{9}}t_{I_{14},J_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_7, K_{11}, L_{10})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{7}}t_{K_{11},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{14},J_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_8, K_{11}, L_{10})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{10}|\hat{1}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{11},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{10}|\hat{1}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{14},J_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_7, K_{11}, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{9}|\hat{0}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{9}|\hat{0}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9},L_{9}}t_{I_{13},J_{7}}t_{K_{11},L_{9}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_8, K_{11}, L_9)\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{11},L_{9}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{9}}t_{I_{13},J_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_7, K_{11}, L_{10})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{10}|\hat{1}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{11},L_{10}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{10}|\hat{1}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{13},J_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_8, K_{11}, L_{10})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{10}|\hat{1}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{11},L_{10}}\\+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{11}|\hat{1}^{+}_{\alpha}|K_{0}\rangle\langle L_{10}|\hat{1}^{-}_{\alpha}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{13},J_{8}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{14},K_{12},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{12}}t_{J_{14},L_{7}}t_{I_{9},K_{12}}t_{I_{9},$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_{14},K_{12},L_8)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}|0^K 1^L \rangle \langle I_9|\hat{0}_{\alpha}^- |I_0\rangle \langle J_{14}|\hat{0}_{\beta}^+ |J_0\rangle \langle K_{12}|\hat{0}_{\alpha}^+ |K_0\rangle \langle L_8|\hat{1}_{\beta}^- |L_0\rangle t_{A_9,B_{11}} t_{I_9,K_{12}} t_{J_{14},L_8} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}|0^K 1^L \rangle \langle I_9|\hat{0}_{\alpha}^- |I_0\rangle \langle J_{14}|\hat{0}_{\beta}^+ |J_0\rangle \langle K_{12}|\hat{0}_{\alpha}^+ |K_0\rangle \langle L_8|\hat{1}_{\beta}^- |L_0\rangle t_{A_9,K_{12}} t_{B_{11},I_9} t_{J_{14},L_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{14},K_{12},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{12}}t_{J_{14},L_{7}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},I_{10}}t_{J_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{14},K_{12},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{12}}t_{J_{14},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},I_{10}}t_{J_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_{13},K_{12},L_7)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}|0^K 0^L \rangle \langle I_9|\hat{0}_\alpha^- |I_0\rangle \langle J_{13}|\hat{1}_\beta^+ |J_0\rangle \langle K_{12}|\hat{0}_\alpha^+ |K_0\rangle \langle L_7|\hat{0}_\beta^- |L_0\rangle t_{A_9,B_{11}} t_{I_9,K_{12}} t_{J_{13},L_7} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}|0^K 0^L \rangle \langle I_9|\hat{0}_\alpha^- |I_0\rangle \langle J_{13}|\hat{1}_\beta^+ |J_0\rangle \langle K_{12}|\hat{0}_\alpha^+ |K_0\rangle \langle L_7|\hat{0}_\beta^- |L_0\rangle t_{A_9,K_{12}} t_{B_{11},I_9} t_{J_{13},L_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{13},K_{12},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{12}}t_{J_{13},L_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},I_{9}}t_{J_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{13},K_{12},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{12}}t_{J_{13},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},I_{10}}t_{J_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{13},K_{12},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{12}}t_{J_{13},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},I_{10}}t_{J_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{14},K_{11},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{11}}t_{J_{14},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_{14},K_{11},L_8)\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}| 1^K 1^L \rangle \langle I_9| \hat{0}_{\alpha}^- |I_0\rangle \langle J_{14}| \hat{0}_{\beta}^+ |J_0\rangle \langle K_{11}| \hat{1}_{\alpha}^+ |K_0\rangle \langle L_8| \hat{1}_{\beta}^- |L_0\rangle t_{A_9,B_{11}} t_{I_9,K_{11}} t_{J_{14},L_8} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}| 1^K 1^L \rangle \langle I_9| \hat{0}_{\alpha}^- |I_0\rangle \langle J_{14}| \hat{0}_{\beta}^+ |J_0\rangle \langle K_{11}| \hat{1}_{\alpha}^+ |K_0\rangle \langle L_8| \hat{1}_{\beta}^- |L_0\rangle t_{A_9,K_{11}} t_{B_{11},I_9} t_{J_{14},L_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{14},K_{11},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{11}}t_{J_{14},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{14},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{14},K_{11},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{11}}t_{J_{14},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{14},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{13},K_{11},L_{7})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle \langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{11}}t_{J_{13},L_{7}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{L} \sum_{K} \sum_{K} \sum_{L} \langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle \langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{13},K_{11},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{11}}t_{J_{13},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{13},K_{11},L_{7})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{11}}t_{J_{13},L_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{7}|\hat{0}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{13},L_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{13},K_{11},L_{8})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{11}}t_{J_{13},L_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{8}|\hat{1}_{\beta}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{13},L_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{14},K_{12},L_{9})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle \langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{12},L_{9}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle \langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},L_{9}}t_{I_{7},J_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{14}, K_{12}, L_9)\rangle =$$

$$+\frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^K |\hat{g}|0^J 0^L \rangle \langle I_8 |\hat{1}^-_{\beta} |I_0\rangle \langle J_{14} |\hat{0}^+_{\beta} |J_0\rangle \langle K_{12} |\hat{0}^+_{\alpha} |K_0\rangle \langle L_9 |\hat{0}^-_{\alpha} |L_0\rangle t_{A_9, B_{11}} t_{I_8, J_{14}} t_{K_{12}, L_9}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 0^{J} 0^{L} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9}, K_{12}} t_{B_{11}, L_{9}} t_{I_{8}, J_{14}} t_{B_{11}, L_{9}} t_$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{14}, K_{12}, L_{10})\rangle =$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{12},L_{10}}\\ +\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},L_{10}}t_{I_{7},J_{14}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{14}, K_{12}, L_{10})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 0^{J} 1^{L} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{8},J_{14}} t_{K_{12},L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 0^{J} 1^{L} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},K_{12}} t_{B_{11},L_{10}} t_{I_{8},J_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{13}, K_{12}, L_9)\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{7},J_{13}} t_{K_{12},L_{9}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},K_{12}} t_{B_{11},L_{9}} t_{I_{7},J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{13}, K_{12}, L_9)\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{8},J_{13}} t_{K_{12},L_{9}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{9} | \hat{0}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},K_{12}} t_{B_{11},L_{9}} t_{I_{8},J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{13}, K_{12}, L_{10})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 1^{J} 1^{L} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{7},J_{13}} t_{K_{12},L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{L} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 1^{J} 1^{L} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},K_{12}} t_{B_{11},L_{10}} t_{I_{7},J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{13}, K_{12}, L_{10})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 1^{J} 1^{L} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{8},J_{13}} t_{K_{12},L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 1^{J} 1^{L} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{10} | \hat{1}_{\alpha}^{-} | L_{0} \rangle t_{A_{9},K_{12}} t_{B_{11},L_{10}} t_{I_{8},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{14},K_{11},L_{9})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{11},L_{9}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{9}}t_{I_{7},J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{14},K_{11},L_{9})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{11},L_{9}}t_{I_{8},J_{14}}t_{K_{11},L_{9}}t_{I_{8},J_{14},J_{14},J_{14}}t_{I_{8},J_{14},J_{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{14},K_{11},L_{10})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{K}|\hat{g}|0^{J} 1^{L}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle \langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{11},L_{10}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{K}|\hat{g}|0^{J} 1^{L}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle \langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{7},J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{14},K_{11},L_{10})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{11},L_{10}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{8},J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{13},K_{11},L_{9})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{11},L_{9}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{9}}t_{I_{7},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{13},K_{11},L_{9})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{11},L_{9}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle \langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle \langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle \langle L_{9}|\hat{0}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{9}}t_{I_{8},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{13},K_{11},L_{10})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{11},L_{10}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{7},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{13},K_{11},L_{10})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{11},L_{10}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{10}|\hat{1}_{\alpha}^{-}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},L_{10}}t_{I_{8},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})| \dot{H} | (A_9,B_{11},I_9,J_9,K_{12},L_{12}) \rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_9,K_{12}} t_{J_9,L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_9,K_{12}} t_{J_9,L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9,B_{11}} t_{I_9,L_{12}} t_{J_9,K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_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_9,B_{11}} t_{I_9,L_{12}} t_{J_9,K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_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_9,K_{12}} t_{B_{11},I_9} t_{J_9,L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_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_9,K_{12}} t_{B_{11},I_9} t_{J_9,L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_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_9,K_{12}} t_{B_{11},J_9} t_{I_9,L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_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_9,K_{12}} t_{B_{11},J_9} t_{I_9,K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J | \hat{g} | 0^K 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_9,L_{12}} t_{B_{11},J_9} t_{J_9,K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{7},K_{14},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{7},L_{14}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{7},L_{14}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{7},K_{14}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{7},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{7},K_{12},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{12}}t_{J_{7},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},I_{9}}t_{J_{7},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})| \hat{H}| (A_9, B_{11}, I_9, J_{10}, K_{12}, L_{12}) \rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I I^J | \hat{g} | 0^K 0^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_9, B_{11}} t_{I_9, K_{12}} t_{J_{10}, L_{12}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I I^J | \hat{g} | 0^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_{12} | \hat{0}_\alpha^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_9, K_{12}} t_{J_{10}, L_{12}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I I^J | \hat{g} | 0^K 0^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_9, B_{11}} t_{I_9, L_{12}} t_{J_{10}, K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{K} \langle 0^I I^J | \hat{g} | 0^K 0^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_9, B_{11}} t_{I_9, L_{12}} t_{J_{10}, K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 0^I I^J | \hat{g} | 0^K 0^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_9, K_{12}} t_{B_{11}, I_9} t_{J_{10}, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 0^I I^J | \hat{g} | 0^K 0^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_9, K_{12}} t_{B_{11}, I_9} t_{J_{10}, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 0^I I^J | \hat{g} | 0^K 0^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_9, K_{12}} t_{B_{11}, J_{10}} t_{I_9, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 0^I I^J | \hat{g} | 0^K 0^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_9, K_{12}} t_{B_{11}, J_9} t_{J_{10}, K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 0^I I^J | \hat{g} | 0^L 0^K \rangle \langle I_9 | \hat{0}_\alpha^- | I_0 \rangle \langle J_{10} | \hat{1}_\alpha^- | J_0$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_8, K_{14}, L_{14})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{8},L_{14}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{8},L_{14}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{8},K_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{8},K_{12},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{12}}t_{J_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},I_{9}}t_{J_{8},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{10},J_9,K_{12},L_{12})\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_{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_9,B_{11}} t_{I_{10},K_{12}} t_{J_9,L_{12}} \\ &+ \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_{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_9,B_{11}} t_{I_{10},K_{12}} 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_{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_9,B_{11}} t_{I_{10},K_{12}} 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 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_9,B_{11}} t_{I_{10},L_{12}} 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 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_9,K_{12}} t_{B_{11},I_{10}} 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_{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_9,K_{12}} t_{B_{11},I_{10}} 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_{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_9,K_{12}} t_{B_{11},I_9} t_{I_{10},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_{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_9,K_{12}} t_{B_{11},I_{10}} 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 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_9,L_{12}} t_{B_{11},I_{10}} 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 0^L \rangle \langle I_{10}|\hat{1}_\alpha^- |I_0 \rangle$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{7},K_{14},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{7},L_{14}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{7},L_{14}} \end{split}$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 0^{K} 0^{L} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{8},L_{14}} t_{J_{7},K_{14}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 0^{L} 0^{K} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{8},L_{14}} t_{J_{7},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{7},K_{12},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{12}}t_{J_{7},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},I_{10}}t_{J_{7},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{10}, K_{12}, L_{12})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^I 1^J | \hat{g} | 0^K 0^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_9, B_{11}} t_{I_{10}, K_{12}} t_{J_{10}, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_{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_9, B_{11}} t_{I_{10}, K_{12}} t_{J_{10}, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^I 1^J | \hat{g} | 0^K 0^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_9, B_{11}} t_{I_{10}, L_{12}} t_{J_{10}, K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_{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_9, B_{11}} t_{I_{10}, L_{12}} t_{J_{10}, K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_{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_9, K_{12}} t_{B_{11}, I_{10}} t_{J_{10}, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_{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_9, K_{12}} t_{B_{11}, I_{10}} t_{J_{10}, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_{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_9, K_{12}} t_{B_{11}, I_{10}} t_{I_{10}, L_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_{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_9, K_{12}} t_{B_{11}, I_{10}} t_{I_{10}, K_{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{8},K_{14},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{8},L_{14}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{8},L_{14}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{8},K_{14}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{10},J_8,K_{12},L_{14})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 1^J |\hat{g}|0^K 0^L \rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_8|\hat{1}_{\beta}^- |J_0\rangle \langle K_{12}|\hat{0}_{\alpha}^+ |K_0\rangle \langle L_{14}|\hat{0}_{\beta}^+ |L_0\rangle t_{A_9,B_{11}} t_{I_{10},K_{12}} t_{J_8,L_{14}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 1^J |\hat{g}|0^K 0^L \rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_8|\hat{1}_{\beta}^- |J_0\rangle \langle K_{12}|\hat{0}_{\alpha}^+ |K_0\rangle \langle L_{14}|\hat{0}_{\beta}^+ |L_0\rangle t_{A_9,K_{12}} t_{B_{11},I_{10}} t_{J_8,L_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_9,K_{12},L_{11})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J |\hat{g}|0^K 1^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_9,B_{11}} t_{I_9,K_{12}} t_{J_9,L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J |\hat{g}|1^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_{11}|\hat{1}_\alpha^+|L_0 \rangle t_{A_9,B_{11}} t_{I_9,K_{12}} t_{J_9,L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J |\hat{g}|0^K 1^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_9,B_{11}} t_{I_9,L_{11}} t_{J_9,K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J |\hat{g}|1^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_{11}|\hat{1}_\alpha^+|L_0 \rangle t_{A_9,B_{11}} t_{I_9,L_{11}} t_{J_9,K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J |\hat{g}|0^K 1^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_9,K_{12}} t_{B_{11},I_9} t_{J_9,L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J |\hat{g}|0^K 1^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_9,K_{12}} t_{B_{11},I_9} t_{J_9,L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J |\hat{g}|0^K 1^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_9,K_{12}} t_{B_{11},J_9} t_{J_9,L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J |\hat{g}|0^K 1^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_9,K_{12}} t_{B_{11},J_9} 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 1^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_9,K_{12}} t_{B_{11},J_9} 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 1^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_9,L_{11}} t_{B_{11},J_9} t_{J_9,K_{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{7},K_{14},L_{13})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{7},L_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{7},L_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{7},K_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{7},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{7},K_{12},L_{13})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle \langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{12}}t_{J_{7},L_{13}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle \langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle \langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},I_{9}}t_{J_{7},L_{13}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_{10}, K_{12}, L_{11})\rangle = \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_9, K_{12}} t_{J_{10}, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_9, B_{11}} t_{I_9, K_{12}} t_{J_{10}, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_9, B_{11}} t_{I_9, L_{11}} t_{J_{10}, K_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \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_9, B_{11}} t_{I_9, L_{11}} t_{J_{10}, K_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \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_9, K_{12}} t_{B_{11}, I_9} t_{J_{10}, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \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_9, K_{12}} t_{B_{11}, I_9} t_{J_{10}, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \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_9, K_{12}} t_{B_{11}, J_{10}} t_{I_9, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \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_9, L_{11}} t_{B_{11}, I_9} t_{J_{10}, K_{12}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \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$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{8},K_{14},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{8},L_{13}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{8},L_{13}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{8},K_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{8},K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_8, K_{12}, L_{13})\rangle =$$

$$+ \frac{1}{48} \sum_{I} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_8 | \hat{1}_{\beta}^- | J_0 \rangle \langle K_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{13} | \hat{1}_{\beta}^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_9, K_{12}} t_{J_8, L_{13}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{K} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 0^{K} 1^{L} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{8} | \hat{1}_{\beta}^{-} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{13} | \hat{1}_{\beta}^{+} | L_{0} \rangle t_{A_{9}, K_{12}} t_{B_{11}, I_{9}} t_{J_{8}, L_{13}}$$

$$\begin{split} &\langle (A_9, B_{11})| \hat{H}| (A_9, B_{11}, I_{10}, J_9, K_{12}, L_{11}) \rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, K_{12}} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_9, B_{11}} t_{I_{10}, K_{12}} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_9, B_{11}} t_{I_{10}, L_{11}} t_{J_9, K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \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_9, K_{12}} t_{B_{11}, I_{10}} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_9, K_{12}} t_{B_{11}, I_{10}} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_9, K_{12}} t_{B_{11}, I_{10}} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_9, K_{12}} t_{B_{11}, I_{10}} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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_9, L_{11}} t_{B_{11}, I_{10}} t_{J_9, K_{12}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \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$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{7},K_{14},L_{13})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{7},L_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{7},L_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{7},K_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{7},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{7},K_{12},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{12}}t_{J_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},I_{10}}t_{J_{7},L_{13}} \end{split}$$

$$\langle (A_9, B_{11}) | \hat{H} | (A_9, B_{11}, I_{10}, J_{10}, K_{12}, L_{11}) \rangle =$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{10} | \hat{1}_{\alpha}^- | J_0 \rangle \langle K_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{11} | \hat{1}_{\alpha}^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_{10}, K_{12}} t_{J_{10}, L_{11}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^I 1^J | \hat{g} | 1^L 0^K \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{10} | \hat{1}_{\alpha}^- | J_0 \rangle \langle K_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{11} | \hat{1}_{\alpha}^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_{10}, K_{12}} t_{J_{10}, L_{11}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{10} | \hat{1}_{\alpha}^- | J_0 \rangle \langle K_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{11} | \hat{1}_{\alpha}^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_{10}, L_{11}} t_{J_{10}, K_{12}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^I 1^J | \hat{g} | 1^L 0^K \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{10} | \hat{1}_{\alpha}^- | J_0 \rangle \langle K_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{11} | \hat{1}_{\alpha}^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_{10}, L_{11}} t_{J_{10}, K_{12}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{10} | \hat{1}_{\alpha}^- | J_0 \rangle \langle K_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{11} | \hat{1}_{\alpha}^+ | L_0 \rangle t_{A_9, K_{12}} t_{B_{11}, I_{10}} t_{J_{10}, L_{11}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{10} | \hat{1}_{\alpha}^- | J_0 \rangle \langle K_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{11} | \hat{1}_{\alpha}^+ | L_0 \rangle t_{A_9, K_{12}} t_{B_{11}, I_{10}} t_{I_{10}, L_{11}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{10} | \hat{1}_{\alpha}^- | J_0 \rangle \langle K_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{11} | \hat{1}_{\alpha}^+ | L_0 \rangle t_{A_9, K_{12}} t_{B_{11}, J_{10}} t_{I_{10}, L_{11}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 1^J | \hat{g} | 0^K 1^L \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{10} | \hat{1}_{\alpha}^- | J_0 \rangle \langle K_{12} | \hat{0}_{\alpha}^+ | K_0 \rangle \langle L_{11} | \hat{1}_{\alpha}^+ | L_0 \rangle t_{A_9, K_{12}} t_{B_{11}, J_{10}} t_{I_{10}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{8},K_{14},L_{13})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{8},L_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{8},L_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{8},K_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{8},K_{12},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{12}}t_{J_{8},L_{13}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},I_{10}}t_{J_{8},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_9, K_{11}, L_{12})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\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_{9},B_{11}}t_{I_{9},K_{11}}t_{J_{9},L_{12}}}{+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\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_{9},B_{11}}t_{I_{9},K_{11}}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_{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_{9},B_{11}}t_{I_{9},L_{12}}t_{J_{9},K_{11}}\\ +\frac{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_{9},B_{11}}t_{I_{9},L_{12}}t_{J_{9},K_{11}}\\ +\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_{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_{9},K_{11}}t_{B_{11},I_{9}}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}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_{9},K_{11}}t_{B_{11},I_{9}}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}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_{9},K_{11}}t_{B_{11},J_{9}}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}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_{9},K_{11}}t_{B_{11},J_{9}}t_{J_{9},K_{11}}\\ +\frac{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_{9},L_{12}}t_{B_{11},J_{9}}t_{J_{9},K_{11}}\\ +\frac{1}{48}\sum_{I}\sum_{J}\sum_{L}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_7, K_{13}, L_{14})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{7},L_{14}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{7},L_{14}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{7},K_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{7},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_7, K_{11}, L_{14})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{11}}t_{J_{7},L_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{7},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_{10}, K_{11}, L_{12})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{11}}t_{J_{10},L_{12}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{11}}t_{J_{10},L_{12}} \end{split}$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\left\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_{9},B_{11}}t_{I_{9},L_{12}}t_{J_{10},K_{11}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\left\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_{9},B_{11}}t_{I_{9},L_{12}}t_{J_{10},K_{11}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\left\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_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{10},L_{12}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\left\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_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{9},L_{12}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\left\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_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{9},L_{12}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\left\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_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{9},K_{11}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\left\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_{9},L_{12}}t_{B_{11},I_{9}}t_{J_{10},K_{11}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\left\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_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{9},K_{11}}\right.\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\left\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_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{9},K_{11}}\right.\\ &+\frac{1}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_8, K_{13}, L_{14})\rangle =$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{8},L_{14}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{8},L_{14}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{8},K_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{8},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{8},K_{11},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{11}}t_{J_{8},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{8},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{9},K_{11},L_{12})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{11}}t_{J_{9},L_{12}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{11}}t_{J_{9},L_{12}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{12}}t_{J_{9},K_{11}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{12}}t_{J_{9},K_{11}} \end{split}$$

$$\begin{split} &+\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_{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_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{9},L_{12}}\\ &+\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_{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_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{9},L_{12}}\\ &+\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_{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_{9},K_{11}}t_{B_{11},J_{9}}t_{I_{10},L_{12}}\\ &+\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_{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_{9},K_{11}}t_{B_{11},J_{10}}t_{J_{9},K_{11}}\\ &+\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_{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_{9},L_{12}}t_{B_{11},I_{10}}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_{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_{9},L_{12}}t_{B_{11},I_{10}}t_{J_{9},K_{11}}\\ &+\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_{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_{9},L_{12}}t_{B_{11},J_{9}}t_{I_{10},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_{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_{9},L_{12}}t_{B_{11},J_{9}}t_{I_{10},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_{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_{9},L_{12}}t_{B_{11},J_{9}}t_{I_{10},K_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{L}\sum_{L}\langle 1^{I}0^{J}|\hat{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{7},K_{13},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{7},L_{14}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{7},L_{14}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{7},K_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{7},K_{11},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{11}}t_{J_{7},L_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{7},L_{14}} \end{split}$$

$$\begin{split} &+\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_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{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_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{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_{9},L_{12}}t_{B_{11},I_{10}}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_{9},L_{12}}t_{B_{11},J_{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^{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_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{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_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{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_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{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_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{10},K_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{L}\sum_{L}\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_{9},L_{12}}t_{B_{11},J_{10}}t_{A_{11},L_{11},L_{11}}\\ &+\frac{1}{48}\sum_{L}\sum_$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_8, K_{13}, L_{14})\rangle =$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{8},L_{14}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{8},L_{14}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{8},K_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{8},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_8, K_{11}, L_{14})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{11}}t_{J_{8},L_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{8},L_{14}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_9, K_{11}, L_{11})\rangle =$

$$\begin{split} & + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \left\langle 0^{I} 0^{J} | \hat{g} | 1^{K} 1^{L} \right\rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \right\rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \right\rangle \langle K_{11} | \hat{1}_{\alpha}^{+} | K_{0} \right\rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \right\rangle t_{A_{9},B_{11}} t_{I_{9},K_{11}} t_{J_{9},L_{11}} \\ & + \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{L} 1^{K} \right\rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \right\rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \right\rangle \langle K_{11} | \hat{1}_{\alpha}^{+} | K_{0} \right\rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \right\rangle t_{A_{9},B_{11}} t_{I_{9},K_{11}} t_{J_{9},L_{11}} \\ & + \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{K} 1^{L} \right\rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \right\rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \right\rangle \langle K_{11} | \hat{1}_{\alpha}^{+} | K_{0} \right\rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \right\rangle t_{A_{9},B_{11}} t_{I_{9},L_{11}} t_{J_{9},K_{11}} \\ & + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{L} 1^{K} \right\rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \right\rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \right\rangle \langle K_{11} | \hat{1}_{\alpha}^{+} | K_{0} \right\rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \right\rangle t_{A_{9},K_{11}} t_{B_{11},I_{9}} t_{J_{9},L_{11}} \\ & + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{L} 1^{K} \right\rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \right\rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \right\rangle \langle K_{11} | \hat{1}_{\alpha}^{+} | K_{0} \right\rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \right\rangle t_{A_{9},K_{11}} t_{B_{11},I_{9}} t_{J_{9},L_{11}} \\ & + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{L} 1^{K} \right\rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \right\rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \right\rangle \langle K_{11} | \hat{1}_{\alpha}^{+} | K_{0} \right\rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \right\rangle t_{A_{9},K_{11}} t_{B_{11},I_{9}} t_{I_{9},L_{11}} \\ & + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{L} 1^{K} \right\rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \right\rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \right\rangle \langle K_{11} | \hat{1}_{\alpha}^{+} | K_{0} \right\rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \right\rangle t_{A_{9},K_{11}} t_{B_{11},J_{9}} t_{I_{9},L_{11}} \\ & + \frac{1}{48} \sum_{I} \sum_{J} \sum_{L} \sum_{L} \langle 0^{I} 0^{J} | \hat{g} | 1^{L} 1^{K} \right\rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \right\rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \right\rangle \langle K_{11} | \hat{1}_{\alpha}^{+$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{9}}t_{J_{9},K_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{9}}t_{J_{9},K_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{9}}t_{I_{9},K_{11}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{9}}t_{I_{9},K_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{7},K_{13},L_{13})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{7},L_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{7},L_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{7},K_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{L}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{7},K_{11},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{11}}t_{J_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_{10},K_{11},L_{11})\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_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_9,B_{11}}t_{I_9,K_{11}}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 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_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_9,B_{11}}t_{I_9,K_{11}}t_{J_{10},L_{11}} \\ &+\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_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_9,B_{11}}t_{I_9,L_{11}}t_{J_{10},K_{11}} \\ &+\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_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_9,B_{11}}t_{I_9,L_{11}}t_{J_{10},K_{11}} \\ &+\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_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_9,K_{11}}t_{B_{11},I_9}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 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_{11}|\hat{1}_\alpha^+|L_0\rangle t_{A_9,K_{11}}t_{B_{11},I_9}t_{J_{10},L_{11}} \\ &+\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_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_9,K_{11}}t_{B_{11},J_{10}}t_{I_9,L_{11}} \\ &+\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_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_9,K_{11}}t_{B_{11},J_{10}}t_{I_9,L_{11}} \\ &+\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_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_9,K_{11}}t_{B_{11},I_9}t_{J_{10},K_{11}} \\ &+\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_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_9,K_{11}}t_{B_{11},I_9}t_{J_{10},K_{11}} \\ &+\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_9|\hat{0}_\alpha^-|I_0\rangle\langle J_{10}|\hat{1}_\alpha^-|J_0\rangle\langle K_{11}|\hat{1}_$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{10}}t_{I_{9},K_{11}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{10}}t_{I_{9},K_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{8},K_{13},L_{13})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{8},L_{13}} \\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{8},L_{13}} \\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{8},K_{13}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{8},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{8},K_{11},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},K_{11}}t_{J_{8},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{9}}t_{J_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_9, K_{11}, L_{11})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, K_{11}} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, K_{11}} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, L_{11}} t_{J_9, K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, B_{11}} t_{I_{10}, L_{11}} t_{J_9, K_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, K_{11}} t_{B_{11}, I_{10}} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, K_{11}} t_{B_{11}, I_{10}} t_{J_9, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, K_{11}} t_{B_{11}, I_0} t_{I_0, L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \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_9, L_{11}} t_{B_{11}, I_{10}} t_{J_9, K_{11}} \\ &+ \frac{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{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{7},K_{13},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{7},L_{13}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{7},L_{13}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{7},K_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{7},K_{11},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{11}}t_{J_{7},L_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{7},L_{13}} \end{split}$$

 $\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{10}, K_{11}, L_{11})\rangle = \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^I 1^J | \hat{g} | 1^K 1^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_9, B_{11}} t_{I_{10}, K_{11}} t_{J_{10}, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_{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_9, B_{11}} t_{I_{10}, K_{11}} t_{J_{10}, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \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_{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_9, B_{11}} t_{I_{10}, L_{11}} t_{J_{10}, K_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \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_{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_9, B_{11}} t_{I_{10}, L_{11}} t_{J_{10}, K_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \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_{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_9, K_{11}} t_{B_{11}, I_{10}} t_{J_{10}, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \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_{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_9, K_{11}} t_{B_{11}, I_{10}} t_{I_{10}, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \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_{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_9, K_{11}} t_{B_{11}, I_{10}} t_{I_{10}, L_{11}} \\ + \frac{1}{48} \sum_{I} \sum_{J} \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_{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_9, L_{11}} t_{B_{11}, I_{10}} t_{I_{10}, K_{11}} \\ + \frac{1}{48$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{8},K_{13},L_{13})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{8},L_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{8},L_{13}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{8},K_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{8},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{8},K_{11},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},K_{11}}t_{J_{8},L_{13}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},I_{10}}t_{J_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{9},K_{12},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{9},K_{12}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{7},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{9},K_{12},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{9},K_{12}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{8},L_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{10},K_{12},L_{14})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{10},K_{12}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{10}}t_{I_{7},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{10}, K_{12}, L_{14})\rangle =$$

$$+\frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 1^J |\hat{g}|0^L 0^K \rangle \langle I_8|\hat{1}^-_{\beta}|I_0\rangle \langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle \langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle \langle L_{14}|\hat{0}^+_{\beta}|L_0\rangle t_{A_9, B_{11}} t_{I_8, L_{14}} t_{J_{10}, K_{12}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 0^{L} 0^{K} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle \langle L_{14} | \hat{0}_{\beta}^{+} | L_{0} \rangle t_{A_{9}, K_{12}} t_{B_{11}, J_{10}} t_{I_{8}, L_{14}} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | K_{12} | K_{12} | \hat{0}_{\alpha}^{+} | K_{12} |$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_9, K_{12}, L_{13})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{9},K_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{7},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_9, K_{12}, L_{13})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{9},K_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{9}}t_{I_{8},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{10}, K_{12}, L_{13})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{10},K_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{10}}t_{I_{7},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{10}, K_{12}, L_{13})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{10},K_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{12}}t_{B_{11},J_{10}}t_{I_{8},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_9, K_{11}, L_{14})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{9},K_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{9}}t_{I_{7},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_9, K_{11}, L_{14})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{9},K_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{9}}t_{I_{8},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{10}, K_{11}, L_{14})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{14}}t_{J_{10},K_{11}}\\+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{7},L_{14}}\\$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{10}, K_{11}, L_{14})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{14}}t_{J_{10},K_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{14}|\hat{0}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{8},L_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_9, K_{11}, L_{13})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{9},K_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{9}}t_{I_{7},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_9, K_{11}, L_{13})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{9},K_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{9}}t_{I_{8},L_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{10}, K_{11}, L_{13})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},L_{13}}t_{J_{10},K_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{7},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{10},K_{11},L_{13})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},L_{13}}t_{J_{10},K_{11}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle\langle L_{13}|\hat{1}_{\beta}^{+}|L_{0}\rangle t_{A_{9},K_{11}}t_{B_{11},J_{10}}t_{I_{8},L_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{9},K_{7},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{12}|\hat{0}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{9},L_{12}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{12}|\hat{0}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{9}}t_{I_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{9},K_{8},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{9},L_{12}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{9}}t_{I_{14},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{10},K_{7},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{10},L_{12}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{10},K_{8},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{8}}t_{J_{10},L_{12}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{14},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{9},K_{7},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{9},L_{12}}t_{I_{13},K_{7}}t_{J_{9},L_{12}}t_{I_{13},K_{7}}t_{I_{14},K$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{9},K_{8},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{12}|\hat{0}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{9},L_{12}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{8}|\hat{1}^{-}_{\beta}|K_{0}\rangle\langle L_{12}|\hat{0}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{9}}t_{I_{13},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{10},K_{7},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{10},L_{12}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{13},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{10},K_{8},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{10},L_{12}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{13},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{9},K_{7},L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{11}|\hat{1}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{9},L_{11}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{11}|\hat{1}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{9}}t_{I_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_9,K_8,L_{11})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}| 1^K 1^L \rangle \langle I_{14}|\hat{0}^+_\beta |I_0\rangle \langle J_9|\hat{0}^-_\alpha |J_0\rangle \langle K_8|\hat{1}^-_\beta |K_0\rangle \langle L_{11}|\hat{1}^+_\alpha |L_0\rangle t_{A_9,B_{11}} t_{I_{14},K_8} t_{J_9,L_{11}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}| 1^K 1^L \rangle \langle I_{14}|\hat{0}^+_\beta |I_0\rangle \langle J_9|\hat{0}^-_\alpha |J_0\rangle \langle K_8|\hat{1}^-_\beta |K_0\rangle \langle L_{11}|\hat{1}^+_\alpha |L_0\rangle t_{A_9,L_{11}} t_{B_{11},J_9} t_{I_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{14},J_{10},K_{7},L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},K_{7}}t_{J_{10},L_{11}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{10}}t_{I_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{14},J_{10},K_8,L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J |\hat{g}|1^K 1^L \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle \langle K_8|\hat{1}^-_{\beta}|K_0\rangle \langle L_{11}|\hat{1}^+_{\alpha}|L_0\rangle t_{A_9,B_{11}}t_{I_{14},K_8}t_{J_{10},L_{11}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^I 1^J |\hat{g}|1^K 1^L \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle \langle K_8|\hat{1}^-_{\beta}|K_0\rangle \langle L_{11}|\hat{1}^+_{\alpha}|L_0\rangle t_{A_9,L_{11}}t_{B_{11},J_{10}}t_{I_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{9},K_{7},L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{11}|\hat{1}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{9},L_{11}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{9}|\hat{0}^{-}_{\alpha}|J_{0}\rangle\langle K_{7}|\hat{0}^{-}_{\beta}|K_{0}\rangle\langle L_{11}|\hat{1}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{9}}t_{I_{13},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_{13},J_9,K_8,L_{11})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J |\hat{g}|1^K 1^L \rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_9|\hat{0}^-_{\alpha}|J_0\rangle \langle K_8|\hat{1}^-_{\beta}|K_0\rangle \langle L_{11}|\hat{1}^+_{\alpha}|L_0\rangle t_{A_9,B_{11}} t_{I_{13},K_8} t_{J_9,L_{11}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J |\hat{g}|1^K 1^L \rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_9|\hat{0}^-_{\alpha}|J_0\rangle \langle K_8|\hat{1}^-_{\beta}|K_0\rangle \langle L_{11}|\hat{1}^+_{\alpha}|L_0\rangle t_{A_9,L_{11}} t_{B_{11},J_9} t_{I_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{10},K_{7},L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{7}}t_{J_{10},L_{11}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{10}}t_{I_{13},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{10},K_{8},L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},K_{8}}t_{J_{10},L_{11}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{10}}t_{I_{13},K_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_7, K_9, L_{12})\rangle =$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^K | \hat{g} | 0^J 0^L \rangle \langle I_{14} | \hat{0}^+_{\beta} | I_0 \rangle \langle J_7 | \hat{0}^-_{\beta} | J_0 \rangle \langle K_9 | \hat{0}^-_{\alpha} | K_0 \rangle \langle L_{12} | \hat{0}^+_{\alpha} | L_0 \rangle t_{A_9, B_{11}} t_{I_{14}, J_7} t_{K_9, L_{12}}$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 0^{J} 0^{L} \rangle \langle I_{14} | \hat{0}^{+}_{\beta} | I_{0} \rangle \langle J_{7} | \hat{0}^{-}_{\beta} | J_{0} \rangle \langle K_{9} | \hat{0}^{-}_{\alpha} | K_{0} \rangle \langle L_{12} | \hat{0}^{+}_{\alpha} | L_{0} \rangle t_{A_{9}, L_{12}} t_{B_{11}, K_{9}} t_{I_{14}, J_{7}} t_{A_{12}, L_{12}} t_{A_{11}, K_{11}, K$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_8, K_9, L_{12})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{14} | \hat{0}^{+}_{\beta} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{9} | \hat{0}^{-}_{\alpha} | K_{0} \rangle \langle L_{12} | \hat{0}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},J_{8}} t_{K_{9},L_{12}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{14} | \hat{0}^{+}_{\beta} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{9} | \hat{0}^{-}_{\alpha} | K_{0} \rangle \langle L_{12} | \hat{0}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},L_{12}} t_{B_{11},K_{9}} t_{I_{14},J_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_7, K_{10}, L_{12})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{K} | \hat{g} | 0^{J} 0^{L} \rangle \langle I_{14} | \hat{0}^{+}_{\beta} | I_{0} \rangle \langle J_{7} | \hat{0}^{-}_{\beta} | J_{0} \rangle \langle K_{10} | \hat{1}^{-}_{\alpha} | K_{0} \rangle \langle L_{12} | \hat{0}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},J_{7}} t_{K_{10},L_{12}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{K} | \hat{g} | 0^{J} 0^{L} \rangle \langle I_{14} | \hat{0}^{+}_{\beta} | I_{0} \rangle \langle J_{7} | \hat{0}^{-}_{\beta} | J_{0} \rangle \langle K_{10} | \hat{1}^{-}_{\alpha} | K_{0} \rangle \langle L_{12} | \hat{0}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},L_{12}} t_{B_{11},K_{10}} t_{I_{14},J_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_8, K_{10}, L_{12})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{14} | \hat{0}^{+}_{\beta} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{10} | \hat{1}^{-}_{\alpha} | K_{0} \rangle \langle L_{12} | \hat{0}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},J_{8}} t_{K_{10},L_{12}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{14} | \hat{0}^{+}_{\beta} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{10} | \hat{1}^{-}_{\alpha} | K_{0} \rangle \langle L_{12} | \hat{0}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},L_{12}} t_{B_{11},K_{10}} t_{I_{14},J_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_7, K_9, L_{12})\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{9}|\hat{0}^{-}_{\alpha}|K_{0}\rangle\langle L_{12}|\hat{0}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{9},L_{12}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{9}|\hat{0}^{-}_{\alpha}|K_{0}\rangle\langle L_{12}|\hat{0}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{13},J_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{9}|\hat{0}^{-}_{\alpha}|K_{0}\rangle\langle L_{12}|\hat{0}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{13},J_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{9}|\hat{0}^{-}_{\alpha}|K_{0}\rangle\langle L_{12}|\hat{0}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{13},J_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{9}|\hat{0}^{-}_{\alpha}|K_{0}\rangle\langle L_{12}|\hat{0}^{+}_{\alpha}|L_{0}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle I_{13}|I_{0}\rangle\langle I_{13}|I_{0}\rangle\langle I_{13}|I_{0}\rangle\langle I_{13}|I_{0}\rangle\langle I_{13}|I_{0}\rangle\langle I_{13}|I_{0}\rangle\langle$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_8, K_9, L_{12})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 1^{I} 0^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{13} | \hat{1}^{+}_{\beta} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{9} | \hat{0}^{-}_{\alpha} | K_{0} \rangle \langle L_{12} | \hat{0}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{13},J_{8}} t_{K_{9},L_{12}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 1^{I} 0^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{13} | \hat{1}^{+}_{\beta} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{9} | \hat{0}^{-}_{\alpha} | K_{0} \rangle \langle L_{12} | \hat{0}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},L_{12}} t_{B_{11},K_{9}} t_{I_{13},J_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_7, K_{10}, L_{12})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{K} | \hat{g} | 0^{J} 0^{L} \rangle \langle I_{13} | \hat{1}^{+}_{\beta} | I_{0} \rangle \langle J_{7} | \hat{0}^{-}_{\beta} | J_{0} \rangle \langle K_{10} | \hat{1}^{-}_{\alpha} | K_{0} \rangle \langle L_{12} | \hat{0}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{13},J_{7}} t_{K_{10},L_{12}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{K} | \hat{g} | 0^{J} 0^{L} \rangle \langle I_{13} | \hat{1}^{+}_{\beta} | I_{0} \rangle \langle J_{7} | \hat{0}^{-}_{\beta} | J_{0} \rangle \langle K_{10} | \hat{1}^{-}_{\alpha} | K_{0} \rangle \langle L_{12} | \hat{0}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},L_{12}} t_{B_{11},K_{10}} t_{I_{13},J_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{13}, J_8, K_{10}, L_{12})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{13} | \hat{1}^{+}_{\beta} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{10} | \hat{1}^{-}_{\alpha} | K_{0} \rangle \langle L_{12} | \hat{0}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{13},J_{8}} t_{K_{10},L_{12}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{K} | \hat{g} | 1^{J} 0^{L} \rangle \langle I_{13} | \hat{1}^{+}_{\beta} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{10} | \hat{1}^{-}_{\alpha} | K_{0} \rangle \langle L_{12} | \hat{0}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},L_{12}} t_{B_{11},K_{10}} t_{I_{13},J_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_7, K_9, L_{11})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 0^{J} 1^{L} \rangle \langle I_{14} | \hat{0}^{+}_{\beta} | I_{0} \rangle \langle J_{7} | \hat{0}^{-}_{\beta} | J_{0} \rangle \langle K_{9} | \hat{0}^{-}_{\alpha} | K_{0} \rangle \langle L_{11} | \hat{1}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},J_{7}} t_{K_{9},L_{11}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 0^{J} 1^{L} \rangle \langle I_{14} | \hat{0}^{+}_{\beta} | I_{0} \rangle \langle J_{7} | \hat{0}^{-}_{\beta} | J_{0} \rangle \langle K_{9} | \hat{0}^{-}_{\alpha} | K_{0} \rangle \langle L_{11} | \hat{1}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},L_{11}} t_{B_{11},K_{9}} t_{I_{14},J_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_8, K_9, L_{11})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 1^{J} 1^{L} \rangle \langle I_{14} | \hat{0}^{+}_{\beta} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{9} | \hat{0}^{-}_{\alpha} | K_{0} \rangle \langle L_{11} | \hat{1}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},J_{8}} t_{K_{9},L_{11}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 0^{K} | \hat{g} | 1^{J} 1^{L} \rangle \langle I_{14} | \hat{0}^{+}_{\beta} | I_{0} \rangle \langle J_{8} | \hat{1}^{-}_{\beta} | J_{0} \rangle \langle K_{9} | \hat{0}^{-}_{\alpha} | K_{0} \rangle \langle L_{11} | \hat{1}^{+}_{\alpha} | L_{0} \rangle t_{A_{9},L_{11}} t_{B_{11},K_{9}} t_{I_{14},J_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_7, K_{10}, L_{11})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^{I} 1^{K} | \hat{g} | 0^{J} 1^{L} \rangle \langle I_{14} | \hat{0}_{\beta}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{14},J_{7}} t_{K_{10},L_{11}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^{I} 1^{K} | \hat{g} | 0^{J} 1^{L} \rangle \langle I_{14} | \hat{0}_{\beta}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \rangle t_{A_{9},L_{11}} t_{B_{11},K_{10}} t_{I_{14},J_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{14}, J_8, K_{10}, L_{11})\rangle =$$

$$+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{10}|\hat{1}^{-}_{\alpha}|K_{0}\rangle\langle L_{11}|\hat{1}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{14},J_{8}}t_{K_{10},L_{11}}\\ +\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{14}|\hat{0}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{10}|\hat{1}^{-}_{\alpha}|K_{0}\rangle\langle L_{11}|\hat{1}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},K_{10}}t_{I_{14},J_{8}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{7},K_{9},L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{9}|\hat{0}^{-}_{\alpha}|K_{0}\rangle\langle L_{11}|\hat{1}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{9},L_{11}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle\langle K_{9}|\hat{0}^{-}_{\alpha}|K_{0}\rangle\langle L_{11}|\hat{1}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},K_{9}}t_{I_{13},J_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{8},K_{9},L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{9}|\hat{0}^{-}_{\alpha}|K_{0}\rangle\langle L_{11}|\hat{1}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{9},L_{11}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{8}|\hat{1}^{-}_{\beta}|J_{0}\rangle\langle K_{9}|\hat{0}^{-}_{\alpha}|K_{0}\rangle\langle L_{11}|\hat{1}^{+}_{\alpha}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},K_{9}}t_{I_{13},J_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{7},K_{10},L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{7}}t_{K_{10},L_{11}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},K_{10}}t_{I_{13},J_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{13},J_{8},K_{10},L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{13},J_{8}}t_{K_{10},L_{11}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},K_{10}}t_{I_{13},J_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_{14},K_7,L_{12})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \langle 0^I 0^J |\hat{g}|0^L 0^K \rangle \langle I_9|\hat{0}_{\alpha}^- |I_0\rangle \langle J_{14}|\hat{0}_{\beta}^+ |J_0\rangle \langle K_7|\hat{0}_{\beta}^- |K_0\rangle \langle L_{12}|\hat{0}_{\alpha}^+ |L_0\rangle t_{A_9,B_{11}} t_{I_9,L_{12}} t_{J_{14},K_7} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}|0^L 0^K \rangle \langle I_9|\hat{0}_{\alpha}^- |I_0\rangle \langle J_{14}|\hat{0}_{\beta}^+ |J_0\rangle \langle K_7|\hat{0}_{\beta}^- |K_0\rangle \langle L_{12}|\hat{0}_{\alpha}^+ |L_0\rangle t_{A_9,L_{12}} t_{B_{11},I_9} t_{J_{14},K_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_{14},K_8,L_{12})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}|0^L 1^K \rangle \langle I_9|\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{14}|\hat{0}^+_{\beta}|J_0 \rangle \langle K_8|\hat{1}^-_{\beta}|K_0 \rangle \langle L_{12}|\hat{0}^+_{\alpha}|L_0 \rangle t_{A_9,B_{11}} t_{I_9,L_{12}} t_{J_{14},K_8} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 0^J |\hat{g}|0^L 1^K \rangle \langle I_9|\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{14}|\hat{0}^+_{\beta}|J_0 \rangle \langle K_8|\hat{1}^-_{\beta}|K_0 \rangle \langle L_{12}|\hat{0}^+_{\alpha}|L_0 \rangle t_{A_9,L_{12}} t_{B_{11},I_9} t_{J_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{14},K_{7},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{12}}t_{J_{14},K_{7}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{10}}t_{J_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{14},K_{8},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{12}}t_{J_{14},K_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{10}}t_{J_{14},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{13},K_{7},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{12}}t_{J_{13},K_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{9}}t_{J_{13},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_9,J_{13},K_8,L_{12})\rangle = \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}|0^L 1^K \rangle \langle I_9|\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0 \rangle \langle K_8|\hat{1}^-_{\beta}|K_0 \rangle \langle L_{12}|\hat{0}^+_{\alpha}|L_0 \rangle t_{A_9,B_{11}} t_{I_9,L_{12}} t_{J_{13},K_8} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J |\hat{g}|0^L 1^K \rangle \langle I_9|\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0 \rangle \langle K_8|\hat{1}^-_{\beta}|K_0 \rangle \langle L_{12}|\hat{0}^+_{\alpha}|L_0 \rangle t_{A_9,L_{12}} t_{B_{11},I_9} t_{J_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{13},K_{7},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{12}}t_{J_{13},K_{7}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{10}}t_{J_{13},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{13},K_{8},L_{12})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{12}}t_{J_{13},K_{8}}\\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{10}}t_{J_{13},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{14},K_{7},L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{11}}t_{J_{14},K_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{9}}t_{J_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{14},K_{8},L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{11}}t_{J_{14},K_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{9}}t_{J_{14},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{14},K_{7},L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{11}}t_{J_{14},K_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{10}}t_{J_{14},K_{7}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{14},K_{8},L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{11}}t_{J_{14},K_{8}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{8}|\hat{1}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{10}}t_{J_{14},K_{8}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{13},K_{7},L_{11})\rangle = \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{11}}t_{J_{13},K_{7}} \\ &+ \frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{9}}t_{J_{13},K_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_{13}, K_8, L_{11})\rangle =$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^I 1^J | \hat{g} | 1^L 1^K \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle \langle K_8 | \hat{1}_{\beta}^- | K_0 \rangle \langle L_{11} | \hat{1}_{\alpha}^+ | L_0 \rangle t_{A_9, B_{11}} t_{I_9, L_{11}} t_{J_{13}, K_8}$$

$$+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 0^{I} 1^{J} | \hat{g} | 1^{L} 1^{K} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{8} | \hat{1}_{\beta}^{-} | K_{0} \rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \rangle t_{A_{9}, L_{11}} t_{B_{11}, I_{9}} t_{J_{13}, K_{8}} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | L_{12} \rangle t_{A_{11}, I_{12}} t_{A_{11}, I_{12}, I_{12}} t_{A_{11}, I_{12}} t_{A_{11}, I_{12}} t_{A_{11}, I_{12}} t_{A_{11}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{13}, K_7, L_{11})\rangle =$$

$$\begin{split} &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{11}}t_{J_{13},K_{7}}\\ &+\frac{-1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{7}|\hat{0}_{\beta}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{10}}t_{J_{13},K_{7}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_{13}, K_8, L_{11})\rangle =$$

$$\begin{split} &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 1^{L} 1^{K} \rangle \langle I_{10} | \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{8} | \hat{1}_{\beta}^{-} | K_{0} \rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \rangle t_{A_{9},B_{11}} t_{I_{10},L_{11}} t_{J_{13},K_{8}} \\ &+ \frac{-1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 1^{J} | \hat{g} | 1^{L} 1^{K} \rangle \langle I_{10} | \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{8} | \hat{1}_{\beta}^{-} | K_{0} \rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \rangle t_{A_{9},L_{11}} t_{B_{11},I_{10}} t_{J_{13},K_{8}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{14}, K_9, L_{12})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{9},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{7},J_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{14}, K_9, L_{12})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{9},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{8},J_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{14}, K_{10}, L_{12})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{10},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{L}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{7},J_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{14}, K_{10}, L_{12})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{10},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{8},J_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{13}, K_9, L_{12})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{9},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{7},J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{13}, K_9, L_{12})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{9},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{9}}t_{I_{8},J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{13}, K_{10}, L_{12})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{10},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{7},J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{13}, K_{10}, L_{12})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{10},L_{12}}\\+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{K}|\hat{g}|1^{J}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},K_{10}}t_{I_{8},J_{13}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{14}, K_9, L_{11})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{9},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},K_{9}}t_{I_{7},J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{14},K_{9},L_{11})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{9},L_{11}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},K_{9}}t_{I_{8},J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{14},K_{10},L_{11})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{14}}t_{K_{10},L_{11}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},K_{10}}t_{I_{7},J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{14},K_{10},L_{11})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{14}}t_{K_{10},L_{11}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|0^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},K_{10}}t_{I_{8},J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{13},K_{9},L_{11})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{9},L_{11}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},K_{9}}t_{I_{7},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_{11},I_8,J_{13},K_9,L_{11})\rangle = \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^K |\hat{g}| 1^J 1^L \rangle \langle I_8 |\hat{1}^-_{\beta} |I_0\rangle \langle J_{13}|\hat{1}^+_{\beta} |J_0\rangle \langle K_9 |\hat{0}^-_{\alpha} |K_0\rangle \langle L_{11}|\hat{1}^+_{\alpha} |L_0\rangle t_{A_9,B_{11}} t_{I_8,J_{13}} t_{K_9,L_{11}} \\ &+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^K |\hat{g}| 1^J 1^L \rangle \langle I_8 |\hat{1}^-_{\beta} |I_0\rangle \langle J_{13}|\hat{1}^+_{\beta} |J_0\rangle \langle K_9 |\hat{0}^-_{\alpha} |K_0\rangle \langle L_{11}|\hat{1}^+_{\alpha} |L_0\rangle t_{A_9,L_{11}} t_{B_{11},K_9} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{13},K_{10},L_{11})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},J_{13}}t_{K_{10},L_{11}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},K_{10}}t_{I_{7},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{13},K_{10},L_{11})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},J_{13}}t_{K_{10},L_{11}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{K}|\hat{g}|1^{J}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},K_{10}}t_{I_{8},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{7},K_{14},L_{12})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{12}}t_{J_{7},K_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{9}}t_{J_{7},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{8},K_{14},L_{12})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{12}}t_{J_{8},K_{14}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{9}}t_{J_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{7},K_{14},L_{12})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{12}}t_{J_{7},K_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{10}}t_{J_{7},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{8},K_{14},L_{12})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{12}}t_{J_{8},K_{14}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{10}}t_{J_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{7},K_{13},L_{12})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{12}}t_{J_{7},K_{13}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{9}}t_{J_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{8},K_{13},L_{12})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{12}}t_{J_{8},K_{13}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{9}}t_{J_{8},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{7},K_{13},L_{12})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{12}}t_{J_{7},K_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{10}}t_{J_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{10},J_{8},K_{13},L_{12})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{12}}t_{J_{8},K_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},I_{10}}t_{J_{8},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{7},K_{14},L_{11})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{11}}t_{J_{7},K_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{9}}t_{J_{7},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{9},J_{8},K_{14},L_{11})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{11}}t_{J_{8},K_{14}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{9}}t_{J_{8},K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_7, K_{14}, L_{11})\rangle =$$

$$+\frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^I 0^J |\hat{g}| 1^L 0^K \rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_7|\hat{0}_{\beta}^- |J_0\rangle \langle K_{14}|\hat{0}_{\beta}^+ |K_0\rangle \langle L_{11}|\hat{1}_{\alpha}^+ |L_0\rangle t_{A_9, B_{11}} t_{I_{10}, L_{11}} t_{J_7, K_{14}}$$

$$+ \frac{1}{48} \sum_{I} \sum_{J} \sum_{K} \sum_{L} \langle 1^{I} 0^{J} | \hat{g} | 1^{L} 0^{K} \rangle \langle I_{10} | \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle \langle L_{11} | \hat{1}_{\alpha}^{+} | L_{0} \rangle t_{A_{9}, L_{11}} t_{B_{11}, I_{10}} t_{J_{7}, K_{14}} \rangle \langle I_{10} | \hat{I}_{\alpha}^{-} | I_{10} \rangle \langle I_{11} | \hat{I}_{\alpha}^{+} | I_{10} \rangle \langle I_{11} | \hat{I}_{\alpha}^{+} | I_{10} \rangle \langle I_{10} | \hat{I}_{\alpha}^{-} | I_{10} \rangle \langle I_{10} |$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_8, K_{14}, L_{11})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{11}}t_{J_{8},K_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}0^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{10}}t_{J_{8},K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_7, K_{13}, L_{11})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{11}}t_{J_{7},K_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{9}}t_{J_{7},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_9, J_8, K_{13}, L_{11})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{9},L_{11}}t_{J_{8},K_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{9}}t_{J_{8},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_7, K_{13}, L_{11})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{11}}t_{J_{7},K_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{10}}t_{J_{7},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_{10}, J_8, K_{13}, L_{11})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{10},L_{11}}t_{J_{8},K_{13}}\\ &+\frac{1}{48}\sum_{I}\sum_{L}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{L}1^{K}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},I_{10}}t_{J_{8},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_9, K_{14}, L_{12})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{9},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{9}}t_{I_{7},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{9},K_{14},L_{12})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{9},L_{12}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{9}}t_{I_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{10},K_{14},L_{12})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{10},L_{12}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{7},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{10},K_{14},L_{12})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{10},L_{12}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{9},K_{13},L_{12})\rangle = \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{9},L_{12}} \\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{9}}t_{I_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{9},K_{13},L_{12})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{9},L_{12}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{9}}t_{I_{8},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{10}, K_{13}, L_{12})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{10},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{7},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{10}, K_{13}, L_{12})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{10},L_{12}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}0^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{12}|\hat{0}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{12}}t_{B_{11},J_{10}}t_{I_{8},K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_9, K_{14}, L_{11})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{9},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{9}}t_{I_{7},K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_9, K_{14}, L_{11})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{9},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{9}}t_{I_{8},K_{14}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle\langle I_{18}|\hat{0}_{\beta}^{-}|J_{0}\rangle\langle I_{18}|J_{0}\rangle\langle I_{18}|J_{0}\rangle\langle I_{18}|J_{0}\rangle\langle I_{18}|J_{0}\rangle\langle I_{18}|J_{0$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_7, J_{10}, K_{14}, L_{11})\rangle =$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{14}}t_{J_{10},L_{11}}$$

$$+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{10}}t_{I_{7},K_{14}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_{11}, I_8, J_{10}, K_{14}, L_{11})\rangle =$$

$$\begin{split} &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{14}}t_{J_{10},L_{11}}\\ &+\frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|0^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{14}|\hat{0}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{10}}t_{I_{8},K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{9},K_{13},L_{11})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{9},L_{11}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{9}}t_{I_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{9},K_{13},L_{11})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{9},L_{11}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}0^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{9}}t_{I_{8},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{7},J_{10},K_{13},L_{11})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{7},K_{13}}t_{J_{10},L_{11}} \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 0^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{10}}t_{I_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{11},I_{8},J_{10},K_{13},L_{11})\rangle = \\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},B_{11}}t_{I_{8},K_{13}}t_{J_{10},L_{11}}\\ &+ \frac{1}{48}\sum_{I}\sum_{J}\sum_{K}\sum_{L}\langle 1^{I}1^{J}|\hat{g}|1^{K}1^{L}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle\langle L_{11}|\hat{1}_{\alpha}^{+}|L_{0}\rangle t_{A_{9},L_{11}}t_{B_{11},J_{10}}t_{I_{8},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{12},J_{9},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{9}}t_{I_{12},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{9}}t_{I_{12},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{9}}t_{I_{12},J_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{9}}t_{I_{12},J_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{12}, J_9, K_9)\rangle =$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{12},J_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{12},J_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_{14}, J_9, K_7)\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 0^I|\hat{g}|0^J 0^K\rangle \langle A_0|\hat{0}^+_{\alpha}|A_9\rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_9|\hat{0}^-_{\alpha}|J_0\rangle \langle K_7|\hat{0}^-_{\beta}|K_0\rangle t_{B_{11}, J_9}t_{I_{14}, K_7}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{14}, J_9, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{A_1} t_{B_{11}, J_9} t_{I_{14}, K_7}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{12},J_{9},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{9}}t_{I_{12},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{9}}t_{I_{12},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{10}}t_{I_{12},J_{9}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{10}}t_{I_{12},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{12},J_{9},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{12},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{12},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{12},J_{9}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{12},J_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_{14}, J_9, K_8)\rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{A} 0^{I} | \hat{g} | 0^{J} 1^{K} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle I_{14} | \hat{0}_{\beta}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle \langle K_{8} | \hat{1}_{\beta}^{-} | K_{0} \rangle t_{B_{11}, J_{9}} t_{I_{14}, K_{8}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{14}, J_9, K_8)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|0^J 1^K \rangle \langle A_1 |\hat{0}^+_{\alpha} |A_9\rangle \langle I_{14} |\hat{0}^+_{\beta} |I_0\rangle \langle J_9 |\hat{0}^-_{\alpha} |J_0\rangle \langle K_8 |\hat{1}^-_{\beta} |K_0\rangle t_{A_1} t_{B_{11}, J_9} t_{I_{14}, K_8}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{12},J_{10},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{12},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{12},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{9}}t_{I_{12},J_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{9}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{12},J_{10},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{12},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{12},J_{10}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_{14}, J_{10}, K_7)\rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}| 1^J 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle I_{14} |\hat{0}_{\beta}^+ | I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- | J_0 \rangle \langle K_7 |\hat{0}_{\beta}^- | K_0 \rangle t_{B_{11}, J_{10}} t_{I_{14}, K_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_{14},J_{10},K_7)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{K}\langle 0^A0^I|\hat{g}|1^J0^K\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle\langle K_7|\hat{0}^-_{\beta}|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_{14},K_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{12},J_{10},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{12},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{12},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{10}}t_{I_{12},J_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{10}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{12},J_{10},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{12},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{12},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{12},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_{14},J_{10},K_8)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|1^J 1^K \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha}|J_0 \rangle \langle K_8 |\hat{1}^-_{\beta}|K_0 \rangle t_{B_{11},J_{10}} t_{I_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_{14},J_{10},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I |\hat{g}|1^J 1^K \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha}|J_0 \rangle \langle K_8 |\hat{1}^-_{\beta}|K_0 \rangle t_{A_1} t_{B_{11},J_{10}} t_{I_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{11},J_{9},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{9}}t_{I_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{9}}t_{I_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{9}}t_{I_{11},J_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{9}}t_{I_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{11},J_{9},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{11},J_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{11},J_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_{13}, J_9, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|0^J 0^K \rangle \langle A_0 |\hat{0}^+_{\alpha} | A_9 \rangle \langle I_{13} |\hat{1}^+_{\beta} | I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha} | J_0 \rangle \langle K_7 |\hat{0}^-_{\beta} | K_0 \rangle t_{B_{11}, J_9} t_{I_{13}, K_7}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{13}, J_9, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{K} \langle 0^A 1^I |\hat{g}|0^J 0^K \rangle \langle A_1 |\hat{0}^+_{\alpha} | A_9 \rangle \langle I_{13} |\hat{1}^+_{\beta} | I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha} | J_0 \rangle \langle K_7 |\hat{0}^-_{\beta} | K_0 \rangle t_{A_1} t_{B_{11}, J_9} t_{I_{13}, K_7}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{11},J_{9},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{9}}t_{I_{11},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{9}}t_{I_{11},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{10}}t_{I_{11},J_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{10}}t_{I_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{11},J_{9},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{11},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{11},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{11},J_{9}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{11},J_{9}} \end{split}$$

$$\langle (A_9, B_{11}) | \hat{H} | (B_{11}, I_{13}, J_9, K_8) \rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{K} \langle 0^A 1^I | \hat{g} | 0^J 1^K \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_{13} | \hat{1}_{\beta}^+ | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_8 | \hat{1}_{\beta}^- | K_0 \rangle t_{B_{11}, J_9} t_{I_{13}, K_8}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{13}, J_9, K_8)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|0^J 1^K \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{A_1} t_{B_{11}, J_9} t_{I_{13}, K_8}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{11},J_{10},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{9}}t_{I_{11},J_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{9}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{11},J_{10},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{11},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{11},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{11},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{11},J_{10}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_{13}, J_{10}, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}| 1^J 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle I_{13} |\hat{1}_{\beta}^+ | I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- | J_0 \rangle \langle K_7 |\hat{0}_{\beta}^- | K_0 \rangle t_{B_{11}, J_{10}} t_{I_{13}, K_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_{13},J_{10},K_7)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 1^I|\hat{g}|1^J 0^K\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle\langle K_7|\hat{0}^-_{\beta}|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_{13},K_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{11},J_{10},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{11},K_{10}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{11},K_{10}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{10}}t_{I_{11},J_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{10}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{11},J_{10},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{11},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{11},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{11},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_{13},J_{10},K_8)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|1^J 1^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{B_{11},J_{10}} t_{I_{13},K_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{13}, J_{10}, K_8)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|1^J 1^K \rangle \langle A_1 |\hat{0}^+_{\alpha} |A_9\rangle \langle I_{13} |\hat{1}^+_{\beta} |I_0\rangle \langle J_{10} |\hat{1}^-_{\alpha} |J_0\rangle \langle K_8 |\hat{1}^-_{\beta} |K_0\rangle t_{A_1} t_{B_{11}, J_{10}} t_{I_{13}, K_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{12},J_9,K_9)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A0^I|\hat{g}|0^J0^K\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_2}t_{B_{11},J_9}t_{I_{12},K_9} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_2}t_{B_{11},J_9}t_{I_{12},K_9} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A0^I|\hat{g}|0^J0^K\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_2}t_{B_{11},K_9}t_{I_{12},J_9} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A0^I|\hat{g}|0^K0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_2}t_{B_{11},K_9}t_{I_{12},J_9} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{12},J_{9},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{12},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{12},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{9}}t_{I_{12},J_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{9}}t_{I_{12},J_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_{14}, J_9, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}^+_{\alpha} |A_9\rangle \langle I_{14} |\hat{0}^+_{\beta} |I_0\rangle \langle J_9 |\hat{0}^-_{\alpha} |J_0\rangle \langle K_7 |\hat{0}^-_{\beta} |K_0\rangle t_{A_2} t_{B_{11}, J_9} t_{I_{14}, K_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{14},J_9,K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_3 |\hat{1}^+_\alpha |A_9 \rangle \langle I_{14} |\hat{0}^+_\beta |I_0 \rangle \langle J_9 |\hat{0}^-_\alpha |J_0 \rangle \langle K_7 |\hat{0}^-_\beta |K_0 \rangle t_{A_3} t_{B_{11},J_9} t_{I_{14},K_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{12},J_{9},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{9}}t_{I_{12},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{9}}t_{I_{12},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{10}}t_{I_{12},J_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{10}}t_{I_{12},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{12},J_9,K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A0^I|\hat{g}|0^J1^K\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_3}t_{B_{11},J_9}t_{I_{12},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A0^I|\hat{g}|1^K0^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_3}t_{B_{11},J_9}t_{I_{12},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A0^I|\hat{g}|0^J1^K\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_3}t_{B_{11},K_{10}}t_{I_{12},J_9} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A0^I|\hat{g}|1^K0^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_3}t_{B_{11},K_{10}}t_{I_{12},J_9} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_{14}, J_9, K_8)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^J 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{A_2} t_{B_{11}, J_9} t_{I_{14}, K_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{14},J_9,K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|0^J 1^K \rangle \langle A_3 |\hat{1}^+_\alpha |A_9 \rangle \langle I_{14} |\hat{0}^+_\beta |I_0 \rangle \langle J_9 |\hat{0}^-_\alpha |J_0 \rangle \langle K_8 |\hat{1}^-_\beta |K_0 \rangle t_{A_3} t_{B_{11},J_9} t_{I_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{12},J_{10},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{9}}t_{I_{12},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{9}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{12},J_{10},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{12},K_{9}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{12},K_{9}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{9}}t_{I_{12},J_{10}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{9}}t_{I_{12},J_{10}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_{14}, J_{10}, K_7)\rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{K} \langle 1^A 0^I |\hat{g}|1^J 0^K \rangle \langle A_2 |\hat{1}^+_{\alpha} |A_9\rangle \langle I_{14} |\hat{0}^+_{\beta} |I_0\rangle \langle J_{10} |\hat{1}^-_{\alpha} |J_0\rangle \langle K_7 |\hat{0}^-_{\beta} |K_0\rangle t_{A_2} t_{B_{11}, J_{10}} t_{I_{14}, K_7}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_{14}, J_{10}, K_7)\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A 0^I|\hat{g}|1^J 0^K\rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle \langle K_7|\hat{0}^-_{\beta}|K_0\rangle t_{A_3}t_{B_{11},J_{10}}t_{I_{14},K_7}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{12},J_{10},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{12},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{12},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{10}}t_{I_{12},J_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{10}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{12},J_{10},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{12},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{12},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{10}}t_{I_{12},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{10}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{14},J_{10},K_8)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle\langle K_8|\hat{1}_{\beta}^-|K_0\rangle t_{A_2}t_{B_{11},J_{10}}t_{I_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{14},J_{10},K_8)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A0^I|\hat{g}|1^J1^K\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle\langle K_8|\hat{1}^-_{\beta}|K_0\rangle t_{A_3}t_{B_{11},J_{10}}t_{I_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{11},J_9,K_9)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A1^I|\hat{g}|0^J0^K\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_2}t_{B_{11},J_9}t_{I_{11},K_9} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A1^I|\hat{g}|0^K0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_2}t_{B_{11},J_9}t_{I_{11},K_9} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A1^I|\hat{g}|0^J0^K\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_2}t_{B_{11},K_9}t_{I_{11},J_9} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A1^I|\hat{g}|0^K0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_2}t_{B_{11},K_9}t_{I_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{11},J_9,K_9)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A1^I|\hat{g}|0^J0^K\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_3}t_{B_{11},J_9}t_{I_{11},K_9} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A1^I|\hat{g}|0^K0^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_3}t_{B_{11},J_9}t_{I_{11},K_9} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A1^I|\hat{g}|0^J0^K\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_3}t_{B_{11},K_9}t_{I_{11},J_9} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A1^I|\hat{g}|0^K0^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{A_3}t_{B_{11},K_9}t_{I_{11},J_9} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_{13}, J_9, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}^+_{\alpha} |A_9\rangle \langle I_{13} |\hat{1}^+_{\beta} |I_0\rangle \langle J_9 |\hat{0}^-_{\alpha} |J_0\rangle \langle K_7 |\hat{0}^-_{\beta} |K_0\rangle t_{A_2} t_{B_{11}, J_9} t_{I_{13}, K_7}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_{13}, J_9, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^J 0^K \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{A_3} t_{B_{11}, J_9} t_{I_{13}, K_7}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{11},J_{9},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{9}}t_{I_{11},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{9}}t_{I_{11},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{10}}t_{I_{11},J_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{10}}t_{I_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{11},J_{9},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{11},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{11},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{10}}t_{I_{11},J_{9}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{10}}t_{I_{11},J_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_{13}, J_9, K_8)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^J 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{A_2} t_{B_{11}, J_9} t_{I_{13}, K_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{13},J_9,K_8)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{K} \langle 1^A 1^I |\hat{g}|0^J 1^K \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle \langle K_8 |\hat{1}^-_{\beta}|K_0 \rangle t_{A_3} t_{B_{11},J_9} t_{I_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{11},J_{10},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{11},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{11},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{9}}t_{I_{11},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{9}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{11},J_{10},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{9}}t_{I_{11},J_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{9}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{13},J_{10},K_7)\rangle = \\ &+ \frac{1}{12}\sum_I \sum_J \sum_K \langle 1^A 1^I |\hat{g}|1^J 0^K \rangle \langle A_2 |\hat{1}_\alpha^+ |A_9\rangle \langle I_{13}|\hat{1}_\beta^+ |I_0\rangle \langle J_{10}|\hat{1}_\alpha^- |J_0\rangle \langle K_7|\hat{0}_\beta^- |K_0\rangle t_{A_2} t_{B_{11},J_{10}} t_{I_{13},K_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_{13}, J_{10}, K_7)\rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{A} 1^{I} | \hat{g} | 1^{J} 0^{K} \rangle \langle A_{3} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle I_{13} | \hat{1}_{\beta}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle t_{A_{3}} t_{B_{11}, J_{10}} t_{I_{13}, K_{7}} dt_{A_{11}, J_{10}} dt_{A_{11}, J_{10}, J_{10}} dt_{A_{11}, J_{10}, J_{10}, J_{10}} dt_{A_{11}, J_{10}, J_{10}, J_{10}, J_{10}} dt_{A_{11}, J_{10}, J_{10$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{11},J_{10},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{11},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{11},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{10}}t_{I_{11},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{10}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{11},J_{10},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{11},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{11},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{10}}t_{I_{11},J_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{10}}t_{I_{11},J_{10}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_{13}, J_{10}, K_8)\rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|1^J 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{13}|\hat{1}_{\beta}^+ |I_0\rangle \langle J_{10}|\hat{1}_{\alpha}^- |J_0\rangle \langle K_8|\hat{1}_{\beta}^- |K_0\rangle t_{A_2} t_{B_{11}, J_{10}} t_{I_{13}, K_8}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_{13}, J_{10}, K_8)\rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|1^J 1^K \rangle \langle A_3 |\hat{1}^+_{\alpha} |A_9\rangle \langle I_{13} |\hat{1}^+_{\beta} |I_0\rangle \langle J_{10} |\hat{1}^-_{\alpha} |J_0\rangle \langle K_8 |\hat{1}^-_{\beta} |K_0\rangle t_{A_3} t_{B_{11}, J_{10}} t_{I_{13}, K_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_{14},J_7,K_9)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{I} \sum_{K} \langle 0^A 0^I |\hat{g}|0^K 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle \langle K_9 |\hat{0}^-_{\alpha}|K_0 \rangle t_{B_{11},K_9} t_{I_{14},J_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{14}, J_7, K_9)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|0^K 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0\rangle t_{A_1} t_{B_{11}, K_9} t_{I_{14}, J_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_{14},J_8,K_9)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I |\hat{g}|0^K 1^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_8|\hat{1}^-_{\beta}|J_0 \rangle \langle K_9|\hat{0}^-_{\alpha}|K_0 \rangle t_{B_{11},K_9} t_{I_{14},J_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{14}, J_8, K_9)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|0^K 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0\rangle t_{A_1} t_{B_{11}, K_9} t_{I_{14}, J_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_{14},J_7,K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A0^I|\hat{g}|1^K0^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_7|\hat{0}_{\beta}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{B_{11},K_{10}}t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_{14},J_7,K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A0^I|\hat{g}|1^K0^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{14},J_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_{14}, J_8, K_{10})\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|1^K 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{10} |\hat{1}_{\alpha}^- |K_0\rangle t_{B_{11}, K_{10}} t_{I_{14}, J_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_{14},J_8,K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A0^I|\hat{g}|1^K1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{14},J_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_{13}, J_7, K_9)\rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{A} 1^{I} | \hat{g} | 0^{K} 0^{J} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle I_{13} | \hat{1}_{\beta}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle t_{B_{11}, K_{9}} t_{I_{13}, J_{7}} \langle I_{13} | \hat{I}_{\beta}^{+} | I_{12} \rangle \langle I_{13} | \hat{I}_{\beta}^{+} | I_{12} \rangle \langle I_{13} | \hat{I}_{\beta}^{-} | I_{12} \rangle \langle I_{13} | I_{12} \rangle \langle I_$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{13}, J_7, K_9)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|0^K 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0\rangle t_{A_1} t_{B_{11}, K_9} t_{I_{13}, J_7}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_{13}, J_8, K_9)\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{K}\langle 0^A 1^I|\hat{g}|0^K 1^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_{13}|\hat{1}_{\beta}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_9|\hat{0}_{\alpha}^-|K_0\rangle t_{B_{11}, K_9}t_{I_{13}, J_8}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{13}, J_8, K_9)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|0^K 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0\rangle t_{A_1} t_{B_{11}, K_9} t_{I_{13}, J_8}$$

$$\langle (A_9, B_{11}) | \hat{H} | (B_{11}, I_{13}, J_7, K_{10}) \rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I | \hat{g} | 1^K 0^J \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_{13} | \hat{1}_{\beta}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\beta}^- | J_0 \rangle \langle K_{10} | \hat{1}_{\alpha}^- | K_0 \rangle t_{B_{11}, K_{10}} t_{I_{13}, J_7}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{13}, J_7, K_{10})\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 1^I|\hat{g}|1^K 0^J\rangle \langle A_1|\hat{0}^+_{\alpha}|A_9\rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_7|\hat{0}^-_{\beta}|J_0\rangle \langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{13},J_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_{13},J_8,K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A1^I|\hat{g}|1^K1^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_{13}|\hat{1}_{\beta}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{B_{11},K_{10}}t_{I_{13},J_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{13}, J_8, K_{10})\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 1^I|\hat{g}|1^K 1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_{13},J_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{14},J_7,K_9)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^K 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0\rangle t_{A_2} t_{B_{11},K_9} t_{I_{14},J_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_{14}, J_7, K_9)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^K 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha} |A_9\rangle \langle I_{14} |\hat{0}^+_{\beta} |I_0\rangle \langle J_7 |\hat{0}^-_{\beta} |J_0\rangle \langle K_9 |\hat{0}^-_{\alpha} |K_0\rangle t_{A_3} t_{B_{11}, K_9} t_{I_{14}, J_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{14},J_8,K_9)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|0^K 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle \langle K_9 |\hat{0}^-_{\alpha}|K_0 \rangle t_{A_2} t_{B_{11},K_9} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{14},J_8,K_9)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{K}\langle 1^A0^I|\hat{g}|0^K1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle\langle K_9|\hat{0}^-_{\alpha}|K_0\rangle t_{A_3}t_{B_{11},K_9}t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{14},J_7,K_{10})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{10} |\hat{1}_{\alpha}^- |K_0\rangle t_{A_2} t_{B_{11},K_{10}} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{14},J_7,K_{10})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{10} |\hat{1}_{\alpha}^- |K_0\rangle t_{A_3} t_{B_{11},K_{10}} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{14},J_8,K_{10})\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|1^K 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle \langle K_{10}|\hat{1}^-_{\alpha}|K_0 \rangle t_{A_2} t_{B_{11},K_{10}} t_{I_{14},J_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_{14}, J_8, K_{10})\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle t_{A_3}t_{B_{11},K_{10}}t_{I_{14},J_8}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_{13}, J_7, K_9)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^K 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha} |A_9\rangle \langle I_{13} |\hat{1}^+_{\beta} |I_0\rangle \langle J_7 |\hat{0}^-_{\beta} |J_0\rangle \langle K_9 |\hat{0}^-_{\alpha} |K_0\rangle t_{A_2} t_{B_{11}, K_9} t_{I_{13}, J_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{13},J_7,K_9)\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A1^I|\hat{g}|0^K0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle\langle K_9|\hat{0}^-_{\alpha}|K_0\rangle t_{A_3}t_{B_{11},K_9}t_{I_{13},J_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_{13}, J_8, K_9)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^K 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0\rangle t_{A_2} t_{B_{11}, K_9} t_{I_{13}, J_8}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_{13}, J_8, K_9)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^K 1^J \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0\rangle t_{A_3} t_{B_{11}, K_9} t_{I_{13}, J_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{13},J_7,K_{10})\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle \langle K_{10} |\hat{1}^-_{\alpha}|K_0 \rangle t_{A_2} t_{B_{11},K_{10}} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{13},J_7,K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{K}\langle 1^A1^I|\hat{g}|1^K0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle t_{A_3}t_{B_{11},K_{10}}t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{13},J_8,K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A1^I|\hat{g}|1^K1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle t_{A_2}t_{B_{11},K_{10}}t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{13},J_8,K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A1^I|\hat{g}|1^K1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle t_{A_3}t_{B_{11},K_{10}}t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{9},J_{12},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},I_{9}}t_{J_{12},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},I_{9}}t_{J_{12},K_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{9}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{9}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{9},J_{12},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{12},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{12},K_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{9},J_{12}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_9, J_{14}, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{K} \langle 0^A 0^J |\hat{g}|0^I 0^K \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle \langle K_7 |\hat{0}^-_{\beta}|K_0 \rangle t_{B_{11}, I_9} t_{J_{14}, K_7}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_9, J_{14}, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J |\hat{g}|0^I 0^K \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{A_1} t_{B_{11}, I_9} t_{J_{14}, K_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_9,J_{12},K_{10})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0\rangle \langle K_{10} |\hat{1}_{\alpha}^- |K_0\rangle t_{B_{11},I_9} t_{J_{12},K_{10}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0\rangle \langle K_{10} |\hat{1}_{\alpha}^- |K_0\rangle t_{B_{11},I_9} t_{J_{12},K_{10}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0\rangle \langle K_{10} |\hat{1}_{\alpha}^- |K_0\rangle t_{B_{11},K_{10}} t_{I_9,J_{12}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0\rangle \langle K_{10} |\hat{1}_{\alpha}^- |K_0\rangle t_{B_{11},K_{10}} t_{I_9,J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{9},J_{12},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{12},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{12},K_{10}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{9},J_{12}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_9,J_{14},K_8)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle \langle K_8 |\hat{1}^-_{\beta}|K_0 \rangle t_{B_{11},I_9} t_{J_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_9,J_{14},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_1 |\hat{0}^+_\alpha |A_9 \rangle \langle I_9 |\hat{0}^-_\alpha |I_0 \rangle \langle J_{14} |\hat{0}^+_\beta |J_0 \rangle \langle K_8 |\hat{1}^-_\beta |K_0 \rangle t_{A_1} t_{B_{11},I_9} t_{J_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{10},J_{12},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},I_{10}}t_{J_{12},K_{9}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},I_{10}}t_{J_{12},K_{9}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{9}}t_{I_{10},J_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{9}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{10},J_{12},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{12},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{12},K_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_{10},J_{14},K_7)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J |\hat{g}| 1^I 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{B_{11},I_{10}} t_{J_{14},K_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{10}, J_{14}, K_7)\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 0^J|\hat{g}|1^I 0^K\rangle \langle A_1|\hat{0}^+_{\alpha}|A_9\rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle \langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle \langle K_7|\hat{0}^-_{\beta}|K_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_{14},K_7}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{10},J_{12},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},I_{10}}t_{J_{12},K_{10}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},I_{10}}t_{J_{12},K_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{10}}t_{I_{10},J_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{10}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{10},J_{12},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{12},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{12},K_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{10},J_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{10},J_{12}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_{10}, J_{14}, K_8)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J |\hat{g}| 1^I 1^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle I_{10} |\hat{1}_{\alpha}^- | I_0 \rangle \langle J_{14} |\hat{0}_{\beta}^+ | J_0 \rangle \langle K_8 |\hat{1}_{\beta}^- | K_0 \rangle t_{B_{11}, I_{10}} t_{J_{14}, K_8}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{10}, J_{14}, K_8)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J |\hat{g}| 1^I 1^K \rangle \langle A_1 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle I_{10} |\hat{1}_{\alpha}^- | I_0 \rangle \langle J_{14} |\hat{0}_{\beta}^+ | J_0 \rangle \langle K_8 |\hat{1}_{\beta}^- | K_0 \rangle t_{A_1} t_{B_{11}, I_{10}} t_{J_{14}, K_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_9,J_{11},K_9)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^J |\hat{g}|0^I 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0 \rangle t_{B_{11},I_9} t_{J_{11},K_9} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|0^K 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0 \rangle t_{B_{11},I_9} t_{J_{11},K_9} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^J |\hat{g}|0^I 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0 \rangle t_{B_{11},K_9} t_{I_9,J_{11}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|0^K 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0 \rangle t_{B_{11},K_9} t_{I_9,J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{9},J_{11},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{11},K_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_9,J_{13},K_7)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{K} \langle 0^A 1^J |\hat{g}|0^I 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{B_{11},I_9} t_{J_{13},K_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_9, J_{13}, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^J |\hat{g}|0^I 0^K \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{A_1} t_{B_{11}, I_9} t_{J_{13}, K_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_9,J_{11},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{B_{11},I_9}t_{J_{11},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{B_{11},I_9}t_{J_{11},K_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 1^J|\hat{g}|0^I 1^K\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{B_{11},K_{10}}t_{I_9,J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 0^I|\hat{g}|1^K 1^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{B_{11},K_{10}}t_{I_9,J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{9},J_{11},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{11},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{11},K_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_9,J_{13},K_8)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^J |\hat{g}|0^I 1^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{B_{11},I_9} t_{J_{13},K_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_9, J_{13}, K_8)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^J |\hat{g}|0^I 1^K \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{A_1} t_{B_{11}, I_9} t_{J_{13}, K_8}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{10},J_{11},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},I_{10}}t_{J_{11},K_{9}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},I_{10}}t_{J_{11},K_{9}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{9}}t_{I_{10},J_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{9}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{10},J_{11},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{11},K_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{10},J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{9}}t_{I_{10},J_{11}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_{10}, J_{13}, K_7)\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 1^J|\hat{g}|1^I 0^K\rangle \langle A_0|\hat{0}_{\alpha}^+|A_9\rangle \langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle \langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle \langle K_7|\hat{0}_{\beta}^-|K_0\rangle t_{B_{11}, I_{10}}t_{J_{13}, K_7}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{10}, J_{13}, K_7)\rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^J |\hat{g}| 1^I 0^K \rangle \langle A_1 |\hat{0}^+_{\alpha} | A_9 \rangle \langle I_{10} |\hat{1}^-_{\alpha} | I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta} | J_0 \rangle \langle K_7 |\hat{0}^-_{\beta} | K_0 \rangle t_{A_1} t_{B_{11}, I_{10}} t_{J_{13}, K_7}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{10},J_{11},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},I_{10}}t_{J_{11},K_{10}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},I_{10}}t_{J_{11},K_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{10}}t_{I_{10},J_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{11},K_{10}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{10},J_{11},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{11},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{11},K_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{10},J_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{1}}t_{B_{11},K_{10}}t_{I_{10},J_{11}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_{10}, J_{13}, K_8)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{K} \langle 0^A 1^J |\hat{g}|1^I 1^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{13}|\hat{1}_{\beta}^+ |J_0\rangle \langle K_8|\hat{1}_{\beta}^- |K_0\rangle t_{B_{11}, I_{10}} t_{J_{13}, K_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_{10},J_{13},K_8)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{K}\langle 0^A 1^J|\hat{g}|1^I 1^K\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_8|\hat{1}^-_{\beta}|K_0\rangle t_{A_1}t_{B_{11},I_{10}}t_{J_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{9},J_{12},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{12},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{12},K_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{9}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{9}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{9},J_{12},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{12},K_{9}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{12},K_{9}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{9}}t_{I_{9},J_{12}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{9}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_9,J_{14},K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^J |\hat{g}|0^I 0^K \rangle \langle A_2 |\hat{1}^+_\alpha |A_9 \rangle \langle I_9 |\hat{0}^-_\alpha |I_0 \rangle \langle J_{14} |\hat{0}^+_\beta |J_0 \rangle \langle K_7 |\hat{0}^-_\beta |K_0 \rangle t_{A_2} t_{B_{11},I_9} t_{J_{14},K_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_9, J_{14}, K_7)\rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{A} 0^{J} | \hat{g} | 0^{I} 0^{K} \rangle \langle A_{3} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle t_{A_{3}} t_{B_{11}, I_{9}} t_{J_{14}, K_{7}} dt_{A_{11}, I_{11}, I_{12}} dt_{A_{11}, I_{12}, I_{12}, I_{12}} dt_{A_{11}, I_{12}, I_{12}, I_{12}} dt_{A_{11}, I_{12}, I_{12}, I_{12}} dt_{A_{11}, I_{12}, I_{$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{9},J_{12},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{12},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{12},K_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{10}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{10}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{9},J_{12},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{12},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{12},K_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{10}}t_{I_{9},J_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{10}}t_{I_{9},J_{12}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_9, J_{14}, K_8)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{A_2} t_{B_{11}, I_9} t_{J_{14}, K_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_9,J_{14},K_8)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{A_3} t_{B_{11},I_9} t_{J_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{10},J_{12},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{12},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{9}}t_{I_{10},J_{12}} \end{split}$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{A} 1^{I} | \hat{g} | 0^{K} 0^{J} \rangle \langle A_{2} | \hat{1}^{+}_{\alpha} | A_{9} \rangle \langle I_{10} | \hat{1}^{-}_{\alpha} | I_{0} \rangle \langle J_{12} | \hat{0}^{+}_{\alpha} | J_{0} \rangle \langle K_{9} | \hat{0}^{-}_{\alpha} | K_{0} \rangle t_{A_{2}} t_{B_{11}, K_{9}} t_{I_{10}, J_{12}} dt_{A_{12}, A_{13}} dt_{A_{13}, A_{13}, A_{13}} dt_{A_{13}, A_{13}, A_{13},$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{10},J_{12},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{12},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{12},K_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{9}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{9}}t_{I_{10},J_{12}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_{10}, J_{14}, K_7)\rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}| 1^I 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{A_2} t_{B_{11}, I_{10}} t_{J_{14}, K_7}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_{10}, J_{14}, K_7)\rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|1^I 0^K \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{14}|\hat{0}_{\beta}^+ |J_0\rangle \langle K_7|\hat{0}_{\beta}^- |K_0\rangle t_{A_3} t_{B_{11}, I_{10}} t_{J_{14}, K_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{10},J_{12},K_{10})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|1^I 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0 \rangle \langle K_{10}|\hat{1}_{\alpha}^- |K_0 \rangle t_{A_2} t_{B_{11},I_{10}} t_{J_{12},K_{10}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0 \rangle \langle K_{10}|\hat{1}_{\alpha}^- |K_0 \rangle t_{A_2} t_{B_{11},I_{10}} t_{J_{12},K_{10}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|1^I 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0 \rangle \langle K_{10}|\hat{1}_{\alpha}^- |K_0 \rangle t_{A_2} t_{B_{11},K_{10}} t_{I_{10},J_{12}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0 \rangle \langle K_{10}|\hat{1}_{\alpha}^- |K_0 \rangle t_{A_2} t_{B_{11},K_{10}} t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{10},J_{12},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{12},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{12},K_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{10}}t_{I_{10},J_{12}} \end{split}$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{A} 1^{I} | \hat{g} | 1^{K} 0^{J} \rangle \langle A_{3} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle I_{10} | \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle t_{A_{3}} t_{B_{11}, K_{10}} t_{I_{10}, J_{12}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{10},J_{14},K_8)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A0^J|\hat{g}|1^I1^K\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_8|\hat{1}_{\beta}^-|K_0\rangle t_{A_2}t_{B_{11},I_{10}}t_{J_{14},K_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_{10}, J_{14}, K_8)\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{K}\langle 1^A 0^J|\hat{g}|1^I 1^K\rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle \langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle \langle K_8|\hat{1}^-_{\beta}|K_0\rangle t_{A_3}t_{B_{11},I_{10}}t_{J_{14},K_8}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{9},J_{11},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{11},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{11},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{9}}t_{I_{9},J_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{9}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{9},J_{11},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{11},K_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{9}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{9}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_9,J_{13},K_7)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{K} \langle 1^A 1^J |\hat{g}|0^I 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{A_2} t_{B_{11},I_9} t_{J_{13},K_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_9, J_{13}, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{K} \langle 1^A 1^J |\hat{g}|0^I 0^K \rangle \langle A_3 |\hat{1}^+_{\alpha} |A_9\rangle \langle I_9 |\hat{0}^-_{\alpha} |I_0\rangle \langle J_{13} |\hat{1}^+_{\beta} |J_0\rangle \langle K_7 |\hat{0}^-_{\beta} |K_0\rangle t_{A_3} t_{B_{11}, I_9} t_{J_{13}, K_7}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{9},J_{11},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{11},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{11},K_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{10}}t_{I_{9},J_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{10}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{9},J_{11},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{11},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{11},K_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{10}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{10}}t_{I_{9},J_{11}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_9, J_{13}, K_8)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^J |\hat{g}|0^I 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{A_2} t_{B_{11}, I_9} t_{J_{13}, K_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_9,J_{13},K_8)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{I} \sum_{K} \langle 1^A 1^J |\hat{g}|0^I 1^K \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0 \rangle \langle K_8 |\hat{1}_{\beta}^- |K_0 \rangle t_{A_3} t_{B_{11},I_9} t_{J_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{10},J_{11},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{11},K_{9}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{11},K_{9}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{9}}t_{I_{10},J_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{9}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{10},J_{11},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{11},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{11},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{9}}t_{I_{10},J_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{9}}t_{I_{10},J_{11}}\\ \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_{10}, J_{13}, K_7)\rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^J |\hat{g}| 1^I 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{A_2} t_{B_{11}, I_{10}} t_{J_{13}, K_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{10},J_{13},K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^J |\hat{g}| 1^I 0^K \rangle \langle A_3 |\hat{1}^+_{\alpha} |A_9\rangle \langle I_{10} |\hat{1}^-_{\alpha} |I_0\rangle \langle J_{13} |\hat{1}^+_{\beta} |J_0\rangle \langle K_7 |\hat{0}^-_{\beta} |K_0\rangle t_{A_3} t_{B_{11},I_{10}} t_{J_{13},K_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{10},J_{11},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{11},K_{10}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{11},K_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{10}}t_{I_{10},J_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{2}}t_{B_{11},K_{10}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{10},J_{11},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{11},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{11},K_{10}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{10}}t_{I_{10},J_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{3}}t_{B_{11},K_{10}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{10},J_{13},K_8)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A1^J|\hat{g}|1^I1^K\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_8|\hat{1}_{\beta}^-|K_0\rangle t_{A_2}t_{B_{11},I_{10}}t_{J_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{10},J_{13},K_8)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A1^J|\hat{g}|1^I1^K\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_8|\hat{1}^-_{\beta}|K_0\rangle t_{A_3}t_{B_{11},I_{10}}t_{J_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_7,J_{14},K_9)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|0^K 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle I_7 |\hat{0}_{\beta}^-|I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+|J_0\rangle \langle K_9 |\hat{0}_{\alpha}^-|K_0\rangle t_{B_{11},K_9} t_{I_7,J_{14}} \rangle \langle I_7 |\hat{0}_{\beta}^-|I_0\rangle \langle I_7 |I_0\rangle \langle I_7 |I_0\rangle \langle I_7 |I_0\rangle \langle I_7 |I_0\rangle \langle I_7 |I_0\rangle$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_7, J_{14}, K_9)\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I | \hat{g} | 0^K 0^J \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{14} | \hat{0}_{\beta}^+ | J_0 \rangle \langle K_9 | \hat{0}_{\alpha}^- | K_0 \rangle t_{A_1} t_{B_{11}, K_9} t_{I_7, J_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_8,J_{14},K_9)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|0^K 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0\rangle t_{B_{11},K_9} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_8,J_{14},K_9)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{I} \sum_{K} \langle 0^A 1^I |\hat{g}|0^K 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_8 |\hat{1}_{\beta}^- |I_0 \rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0 \rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0 \rangle t_{A_1} t_{B_{11},K_9} t_{I_8,J_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_7, J_{14}, K_{10})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{A} 0^{I} | \hat{g} | 1^{K} 0^{J} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle t_{B_{11}, K_{10}} t_{I_{7}, J_{14}} dt_{I_{7}, J_{14}} d$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_7,J_{14},K_{10})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^A 0^I |\hat{g}| 1^K 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_{10} |\hat{1}_{\alpha}^- |K_0\rangle t_{A_1} t_{B_{11},K_{10}} t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_8,J_{14},K_{10})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|1^K 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_{10} |\hat{1}_{\alpha}^- |K_0\rangle t_{B_{11},K_{10}} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_8,J_{14},K_{10})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|1^K 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_{10} |\hat{1}_{\alpha}^- |K_0\rangle t_{A_1} t_{B_{11},K_{10}} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_7,J_{13},K_9)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|0^K 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle I_7 |\hat{0}_{\beta}^-|I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+|J_0\rangle \langle K_9 |\hat{0}_{\alpha}^-|K_0\rangle t_{B_{11},K_9} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_7,J_{13},K_9)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|0^K 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+|A_9 \rangle \langle I_7 |\hat{0}_{\beta}^-|I_0 \rangle \langle J_{13} |\hat{1}_{\beta}^+|J_0 \rangle \langle K_9 |\hat{0}_{\alpha}^-|K_0 \rangle t_{A_1} t_{B_{11},K_9} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_8,J_{13},K_9)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|0^K 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0\rangle t_{B_{11},K_9} t_{I_8,J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_8, J_{13}, K_9)\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I | \hat{g} | 0^K 1^J \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_8 | \hat{1}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle \langle K_9 | \hat{0}_{\alpha}^- | K_0 \rangle t_{A_1} t_{B_{11}, K_9} t_{I_8, J_{13}}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_7, J_{13}, K_{10})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I | \hat{g} | 1^K 1^J \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle \langle K_{10} | \hat{1}_{\alpha}^- | K_0 \rangle t_{B_{11}, K_{10}} t_{I_7, J_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_7,J_{13},K_{10})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A0^I|\hat{g}|1^K1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_8,J_{13},K_{10})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{I} \sum_{K} \langle 0^A 1^I |\hat{g}| 1^K 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_{10} |\hat{1}_{\alpha}^- |K_0\rangle t_{B_{11},K_{10}} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_8,J_{13},K_{10})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A1^I|\hat{g}|1^K1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_1}t_{B_{11},K_{10}}t_{I_8,J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_7, J_{14}, K_9)\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I | \hat{g} | 0^K 0^J \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{14} | \hat{0}_{\beta}^+ | J_0 \rangle \langle K_9 | \hat{0}_{\alpha}^- | K_0 \rangle t_{A_2} t_{B_{11}, K_9} t_{I_7, J_{14}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_7, J_{14}, K_9)\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I | \hat{g} | 0^K 0^J \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle I_7 | \hat{0}^-_{\beta} | I_0 \rangle \langle J_{14} | \hat{0}^+_{\beta} | J_0 \rangle \langle K_9 | \hat{0}^-_{\alpha} | K_0 \rangle t_{A_3} t_{B_{11}, K_9} t_{I_7, J_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_8,J_{14},K_9)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^K 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_8 |\hat{1}_{\beta}^- |I_0 \rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0 \rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0 \rangle t_{A_2} t_{B_{11},K_9} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_8,J_{14},K_9)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^K 0^J \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_8 |\hat{1}_{\beta}^- |I_0 \rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0 \rangle \langle K_9 |\hat{0}_{\alpha}^- |K_0 \rangle t_{A_3} t_{B_{11},K_9} t_{I_8,J_{14}} \rangle \langle I_8 |\hat{1}_{\beta}^- |I_0 \rangle \langle I_8 |\hat{1}_{\beta}^- |I_0 \rangle \langle I_{14} |\hat{0}_{\beta}^+ |J_0 \rangle \langle I_8 |\hat{0}_{\alpha}^- |K_0 \rangle t_{A_3} t_{B_{11},K_9} t_{I_8,J_{14}} \rangle \langle I_8 |\hat{1}_{\beta}^- |I_0 \rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0 \rangle \langle I_{14} |\hat{0}_{\beta}^- |I_0 \rangle \langle I_0 |I_0 \rangle \langle$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_7,J_{14},K_{10})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_\alpha^+ |A_9\rangle \langle I_7 |\hat{0}_\beta^- |I_0\rangle \langle J_{14} |\hat{0}_\beta^+ |J_0\rangle \langle K_{10} |\hat{1}_\alpha^- |K_0\rangle t_{A_2} t_{B_{11},K_{10}} t_{I_7,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_\alpha^+ |A_9\rangle \langle I_7 |\hat{0}_\beta^- |I_0\rangle \langle J_{14} |\hat{0}_\beta^+ |J_0\rangle \langle K_{10} |\hat{1}_\alpha^- |K_0\rangle t_{A_2} t_{B_{11},K_{10}} t_{I_7,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_\alpha^+ |A_9\rangle \langle I_7 |\hat{0}_\beta^- |I_0\rangle \langle J_{14} |\hat{0}_\beta^+ |J_0\rangle \langle K_{10} |\hat{1}_\alpha^- |K_0\rangle t_{A_2} t_{B_{11},K_{10}} t_{I_7,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_\alpha^+ |A_9\rangle \langle I_7 |\hat{0}_\beta^- |I_0\rangle \langle J_{14} |\hat{0}_\beta^+ |J_0\rangle \langle K_{10} |\hat{1}_\alpha^- |K_0\rangle t_{A_2} t_{B_{11},K_{10}} t_{I_7,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_\alpha^+ |A_9\rangle \langle I_7 |\hat{0}_\beta^- |I_0\rangle \langle J_{14} |\hat{0}_\beta^+ |J_0\rangle \langle K_{10} |\hat{1}_\alpha^- |K_0\rangle t_{A_2} t_{B_{11},K_{10}} t_{I_7,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_\alpha^+ |A_9\rangle \langle I_7 |\hat{0}_\beta^- |I_0\rangle \langle I_7 |\hat{0}_\gamma^- |I_0\rangle \langle I_7 |\hat{0}_\gamma^- |I_0\rangle \langle I_7 |I_0\rangle \langle I_7 |I_0\rangle \langle I_7 |I_0\rangle \langle I_7 |I_0\rangle \langle I_1\rangle \langle$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_7,J_{14},K_{10})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_3 |\hat{1}_\alpha^+ |A_9\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_3} t_{B_{11},K_{10}} t_{I_7,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_3 |\hat{1}_\alpha^+ |A_9\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_3} t_{B_{11},K_{10}} t_{I_7,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_3 |\hat{1}_\alpha^+ |A_9\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_3} t_{B_{11},K_{10}} t_{I_7,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_3 |\hat{1}_\alpha^+ |A_9\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_3} t_{B_{11},K_{10}} t_{I_7,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_3 |\hat{1}_\alpha^+ |A_9\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_3} t_{B_{11},K_{10}} t_{I_7,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_3 |\hat{1}_\alpha^+ |A_9\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_3} t_{B_{11},K_{10}} t_{A_3} \\ &+ \frac{-1}{12} \sum_I \sum_J \langle 1^A 0^I |\hat{g}|1^K 0^J \rangle \langle A_3 |\hat{1}_\alpha^+ |A_9\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_3} t_{B_{11},K_{10}} t_{A_3} \\ &+ \frac{-1}{12} \sum_J \langle 1^A 0^J |\hat{0}_\beta^- |I_0\rangle \langle I_1 |I_0\rangle \langle I_$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_8,J_{14},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_2 |\hat{1}_{\alpha}^+ |A_9\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_2} t_{B_{11},K_{10}} t_{I_8,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\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_2} t_{B_{11},K_{10}} t_{I_8,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\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_2} t_{B_{11},K_{10}} t_{I_8,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\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_2} t_{B_{11},K_{10}} t_{I_8,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\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_2} t_{B_{11},K_{10}} t_{I_8,J_{14}} \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\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_2} t_{B_{11},K_{10}} t_{I_8,J_{14}} \\ &+ \frac{-1}{12} \sum_J \sum_K \langle 1^A 1^I |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\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_2} t_{B_{11},K_{10}} t_{A_1} \\ &+ \frac{-1}{12} \sum_J \sum_K \langle 1^A 1^J |\hat{g}|1^K 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_0\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle I_1 |\hat{1}_{\alpha}^- |I_0\rangle t_{A_1} t$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_8,J_{14},K_{10})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^A1^I|\hat{g}|1^K0^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_{10}|\hat{1}_{\alpha}^-|K_0\rangle t_{A_3}t_{B_{11},K_{10}}t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_7,J_{13},K_9)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^K 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle \langle K_9 |\hat{0}^-_{\alpha}|K_0 \rangle t_{A_2} t_{B_{11},K_9} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_7,J_{13},K_9)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{I} \sum_{K} \langle 1^A 0^I |\hat{g}|0^K 1^J \rangle \langle A_3 |\hat{1}_{\alpha}^{+}|A_9 \rangle \langle I_7 |\hat{0}_{\beta}^{-}|I_0 \rangle \langle J_{13} |\hat{1}_{\beta}^{+}|J_0 \rangle \langle K_9 |\hat{0}_{\alpha}^{-}|K_0 \rangle t_{A_3} t_{B_{11},K_9} t_{I_7,J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_8, J_{13}, K_9)\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I | \hat{g} | 0^K 1^J \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle I_8 | \hat{1}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle \langle K_9 | \hat{0}_{\alpha}^- | K_0 \rangle t_{A_2} t_{B_{11}, K_9} t_{I_8, J_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_8,J_{13},K_9)\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^K 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle \langle K_9 |\hat{0}^-_{\alpha}|K_0 \rangle t_{A_3} t_{B_{11},K_9} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_7,J_{13},K_{10})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 0^I |\hat{g}|1^K 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_{10} |\hat{1}_{\alpha}^- |K_0\rangle t_{A_2} t_{B_{11},K_{10}} t_{I_7,J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_7, J_{13}, K_{10})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I | \hat{g} | 1^K 1^J \rangle \langle A_3 | \hat{1}^+_{\alpha} | A_9 \rangle \langle I_7 | \hat{0}^-_{\beta} | I_0 \rangle \langle J_{13} | \hat{1}^+_{\beta} | J_0 \rangle \langle K_{10} | \hat{1}^-_{\alpha} | K_0 \rangle t_{A_3} t_{B_{11}, K_{10}} t_{I_7, J_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_8,J_{13},K_{10})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I |\hat{g}|1^K 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_{10} |\hat{1}_{\alpha}^- |K_0\rangle t_{A_2} t_{B_{11},K_{10}} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_8,J_{13},K_{10})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I |\hat{g}|1^K 1^J \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_{10} |\hat{1}_{\alpha}^- |K_0\rangle t_{A_3} t_{B_{11},K_{10}} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_9,J_9,K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J |\hat{g}|0^I 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{B_{11},I_9} t_{J_9,K_{12}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{B_{11},I_9} t_{J_9,K_{12}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J |\hat{g}|0^I 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{B_{11},J_9} t_{I_9,K_{12}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{B_{11},J_9} t_{I_9,K_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{9},J_{9},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{9},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{9},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{9},K_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{9},K_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_9,J_7,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J |\hat{g}|0^I 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_{11},I_9} t_{J_7,K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_9, J_7, K_{14})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J | \hat{g} | 0^I 0^K \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_7 | \hat{0}_{\beta}^- | J_0 \rangle \langle K_{14} | \hat{0}_{\beta}^+ | K_0 \rangle t_{A_1} t_{B_{11}, I_9} t_{J_7, K_{14}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{9},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},I_{9}}t_{J_{10},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},I_{9}}t_{J_{10},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{9},K_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{9},K_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{9},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{10},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{10},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{9},K_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{9},K_{12}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_9, J_8, K_{14})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^J |\hat{g}|0^I 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_{11}, I_9} t_{J_8, K_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_9,J_8,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^J |\hat{g}|0^I 0^K \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_1} t_{B_{11},I_9} t_{J_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_{10},J_9,K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{B_{11},I_{10}}t_{J_9,K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{B_{11},I_{10}}t_{J_9,K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A0^J|\hat{g}|1^I0^K\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{B_{11},J_9}t_{I_{10},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A1^I|\hat{g}|0^J0^K\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{B_{11},J_9}t_{I_{10},K_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{10},J_{9},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{9},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{9},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{10},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{10},K_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_{10},J_7,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J |\hat{g}| 1^I 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_{11},I_{10}} t_{J_7,K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{10}, J_7, K_{14})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{A} 0^{J} | \hat{g} | 1^{I} 0^{K} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle I_{10} | \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle t_{A_{1}} t_{B_{11}, I_{10}} t_{J_{7}, K_{14}} | \hat{J}_{11} | I_{11} \rangle \langle I_{11} | I_{11} | I_{11} \rangle \langle I_{11} | I_{11} | I_{11} | I_{11} \rangle \langle I$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{10},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},I_{10}}t_{J_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},I_{10}}t_{J_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{10},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{10},K_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{10},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{10},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{10},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{10},K_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{10},K_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_{10},J_8,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^J |\hat{g}| 1^I 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_{11},I_{10}} t_{J_8,K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{10}, J_8, K_{14})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^J | \hat{g} | 1^I 0^K \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_8 | \hat{1}_{\beta}^- | J_0 \rangle \langle K_{14} | \hat{0}_{\beta}^+ | K_0 \rangle t_{A_1} t_{B_{11}, I_{10}} t_{J_8, K_{14}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{9},J_{9},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},I_{9}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},I_{9}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},J_{9}}t_{I_{9},K_{11}} \end{split}$$

$$+ \tfrac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I | \hat{g} | 0^J 1^K \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_{11} | \hat{1}_{\alpha}^+ | K_0 \rangle t_{B_{11}, J_9} t_{I_9, K_{11}} \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle I_0 | I_$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{9},J_{9},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\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}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{1}\rangle\langle I_{1}|\hat{0}_{\alpha}^{-}|I_{1}\rangle\langle I_{1}|\hat{0}_{\alpha}^{-}|I_{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_9,J_7,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_{11},I_9} t_{J_7,K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_9, J_7, K_{13})\rangle =$$

$$+\frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{A_1} t_{B_{11}, I_9} t_{J_7, K_{13}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{9},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},I_{9}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},I_{9}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{9},K_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{9},K_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{9},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{9}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{9},K_{11}} \end{split}$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{A} 0^{I} | \hat{g} | 1^{J} 1^{K} \rangle \langle A_{1} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{11} | \hat{1}_{\alpha}^{+} | K_{0} \rangle t_{A_{1}} t_{B_{11}, J_{10}} t_{I_{9}, K_{11}} dt_{A_{1}} dt_$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_9,J_8,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^J |\hat{g}|0^I 1^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_{11},I_9} t_{J_8,K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_9, J_8, K_{13})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^J | \hat{g} | 0^I 1^K \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_9 | \hat{0}_{\alpha}^- | I_0 \rangle \langle J_8 | \hat{1}_{\beta}^- | J_0 \rangle \langle K_{13} | \hat{1}_{\beta}^+ | K_0 \rangle t_{A_1} t_{B_{11}, I_9} t_{J_8, K_{13}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{10},J_{9},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},I_{10}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},I_{10}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},J_{9}}t_{I_{10},K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},J_{9}}t_{I_{10},K_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{10},J_{9},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{10},K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{9}}t_{I_{10},K_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_{10},J_7,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J |\hat{g}| 1^I 1^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{13}|\hat{1}_{\beta}^+ |K_0\rangle t_{B_{11},I_{10}} t_{J_7,K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{10}, J_7, K_{13})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^J | \hat{g} | 1^I 1^K \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_7 | \hat{0}_{\beta}^- | J_0 \rangle \langle K_{13} | \hat{1}_{\beta}^+ | K_0 \rangle t_{A_1} t_{B_{11}, I_{10}} t_{J_7, K_{13}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{11},I_{10},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},I_{10}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},I_{10}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{10},K_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{11},J_{10}}t_{I_{10},K_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{11},I_{10},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},I_{10}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{10},K_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{1}}t_{B_{11},J_{10}}t_{I_{10},K_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_{10},J_8,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^J |\hat{g}| 1^I 1^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_{11},I_{10}} t_{J_8,K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_{10}, J_8, K_{13})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^J | \hat{g} | 1^I 1^K \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_8 | \hat{1}_{\beta}^- | J_0 \rangle \langle K_{13} | \hat{1}_{\beta}^+ | K_0 \rangle t_{A_1} t_{B_{11}, I_{10}} t_{J_8, K_{13}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{9},J_{9},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{A}0^{J}|\hat{g}|0^{I}0^{K}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle \langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{9},K_{12}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{A}0^{I}|\hat{g}|0^{J}0^{K}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle \langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{9},K_{12}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{9}}t_{I_{9},K_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{9}}t_{I_{9},K_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{9},J_{9},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{9},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{9},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{9},K_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{9},K_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_9,J_7,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|0^I 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_2} t_{B_{11},I_9} t_{J_7,K_{14}} \rangle \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_9,J_7,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}| 0^I 0^K \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_3} t_{B_{11},I_9} t_{J_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{9},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{9},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{9},K_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_9,J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^J |\hat{g}|0^I 0^K \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle I_9|\hat{0}^-_{\alpha}|I_0\rangle \langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle \langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_3} t_{B_{11},I_9} t_{J_{10},K_{12}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|1^J 0^K \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle I_9|\hat{0}^-_{\alpha}|I_0\rangle \langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle \langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_3} t_{B_{11},I_9} t_{J_{10},K_{12}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{9},K_{12}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{9},K_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_9,J_8,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^J |\hat{g}|0^I 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_8 |\hat{1}_{\beta}^- |J_0 \rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0 \rangle t_{A_2} t_{B_{11},I_9} t_{J_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_9,J_8,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^J |\hat{g}| 0^I 0^K \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_3} t_{B_{11},I_9} t_{J_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{10},J_{9},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{9},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{9},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{9}}t_{I_{10},K_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{9}}t_{I_{10},K_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{10},J_{9},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{9},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{9},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{10},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{10},K_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{10},J_7,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|1^I 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_2} t_{B_{11},I_{10}} t_{J_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{10},J_7,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|1^I 0^K \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_3} t_{B_{11},I_{10}} t_{J_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{10},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{10},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{10},K_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{10},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{10},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{10},K_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{10},J_8,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^J |\hat{g}|1^I 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_8|\hat{1}_{\beta}^- |J_0\rangle \langle K_{14}|\hat{0}_{\beta}^+ |K_0\rangle t_{A_2} t_{B_{11},I_{10}} t_{J_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{10},J_8,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^J |\hat{g}|1^I 0^K \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_8|\hat{1}_{\beta}^- |J_0\rangle \langle K_{14}|\hat{0}_{\beta}^+ |K_0\rangle t_{A_3} t_{B_{11},I_{10}} t_{J_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_9,J_9,K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{A_2} t_{B_{11},I_9} t_{J_9,K_{11}} \rangle \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{A_2} t_{B_{11},I_9} t_{J_9,K_{11}} \rangle \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{A_2} t_{B_{11},I_9} t_{J_9,K_{11}} \rangle \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle I_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{A_2} t_{B_{11},I_9} t_{J_9,K_{11}} \rangle \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle I_0\rangle \langle I_0\rangle$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{9},K_{11}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{9}}t_{I_{9},K_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{9}}t_{I_{9},K_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{9},J_{9},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{9},K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{9},K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{9},K_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_9,J_7,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_7 |\hat{0}_{\beta}^- |J_0 \rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0 \rangle t_{A_2} t_{B_{11},I_9} t_{J_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_9,J_7,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|0^I 1^K \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_7 |\hat{0}_{\beta}^- |J_0 \rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0 \rangle t_{A_3} t_{B_{11},I_9} t_{J_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{9},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{10},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{9}}t_{J_{10},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{9},K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{9},K_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_9,J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^J |\hat{g}|0^I 1^K \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0\rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{A_3} t_{B_{11},I_9} t_{J_{10},K_{11}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{9}}t_{J_{10},K_{11}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{9},K_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{9},K_{11}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_9, J_8, K_{13})\rangle =$$

$$+\frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^J |\hat{g}|0^I 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_8 |\hat{1}_{\beta}^- |J_0 \rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0 \rangle t_{A_2} t_{B_{11}, I_9} t_{J_8, K_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_9,J_8,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^J |\hat{g}| 0^I 1^K \rangle \langle A_3 |\hat{1}^+_{\alpha} |A_9 \rangle \langle I_9 |\hat{0}^-_{\alpha} |I_0 \rangle \langle J_8 |\hat{1}^-_{\beta} |J_0 \rangle \langle K_{13} |\hat{1}^+_{\beta} |K_0 \rangle t_{A_3} t_{B_{11},I_9} t_{J_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{10},J_{9},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{9}}t_{I_{10},K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{9}}t_{I_{10},K_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{10},J_{9},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{10},K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{9}}t_{I_{10},K_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{10},J_7,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|1^I 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{13}|\hat{1}_{\beta}^+ |K_0\rangle t_{A_2} t_{B_{11},I_{10}} t_{J_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_{10},J_7,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^J |\hat{g}|1^I 1^K \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{13}|\hat{1}_{\beta}^+ |K_0\rangle t_{A_3} t_{B_{11},I_{10}} t_{J_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{11},I_{10},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},I_{10}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{10},K_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{2}}t_{B_{11},J_{10}}t_{I_{10},K_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{11},I_{10},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},I_{10}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{10},K_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{A}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{3}}t_{B_{11},J_{10}}t_{I_{10},K_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_{10},J_8,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^J |\hat{g}|1^I 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_8|\hat{1}_{\beta}^- |J_0\rangle \langle K_{13}|\hat{1}_{\beta}^+ |K_0\rangle t_{A_2} t_{B_{11},I_{10}} t_{J_8,K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_{10}, J_8, K_{13})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^J | \hat{g} | 1^I 1^K \rangle \langle A_3 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_8 | \hat{1}_{\beta}^- | J_0 \rangle \langle K_{13} | \hat{1}_{\beta}^+ | K_0 \rangle t_{A_3} t_{B_{11}, I_{10}} t_{J_8, K_{13}}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_{11}, I_7, J_9, K_{14})\rangle =$$

$$+ \tfrac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I | \hat{g} | 0^J 0^K \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_{14} | \hat{0}_{\beta}^+ | K_0 \rangle t_{B_{11}, J_9} t_{I_7, K_{14}} \rangle dt_{B_{11}, J_9} t_{I_7, K_{14}} dt_{B_{14}, J_9} dt_{B$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_7,J_9,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_1} t_{B_{11},J_9} t_{I_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_8,J_9,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|0^J 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_{11},J_9} t_{I_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_8,J_9,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|0^J 0^K \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_1} t_{B_{11},J_9} t_{I_8,K_{14}} \rangle \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_7,J_{10},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}| 1^J 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_{11},J_{10}} t_{I_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_7,J_{10},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}| 1^J 0^K \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_1} t_{B_{11},J_{10}} t_{I_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_8,J_{10},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|1^J 0^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle I_8 |\hat{1}_{\beta}^- |I_0 \rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0 \rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0 \rangle t_{B_{11},J_{10}} t_{I_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_8,J_{10},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|1^J 0^K \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_1} t_{B_{11},J_{10}} t_{I_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_7,J_9,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}|0^J 1^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_{11},J_9} t_{I_7,K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_7, J_9, K_{13})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I | \hat{g} | 0^J 1^K \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_{13} | \hat{1}_{\beta}^+ | K_0 \rangle t_{A_1} t_{B_{11}, J_9} t_{I_7, K_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_8,J_9,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|0^J 1^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_{11},J_9} t_{I_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_8,J_9,K_{13})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^A 1^I|\hat{g}|0^J 1^K\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{A_1}t_{B_{11},J_9}t_{I_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_7,J_{10},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 0^I |\hat{g}| 1^J 1^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_{11},J_{10}} t_{I_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_{11},I_7,J_{10},K_{13})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{I}\sum_{K}\langle 0^A0^I|\hat{g}|1^J1^K\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_1}t_{B_{11},J_{10}}t_{I_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_{11},I_8,J_{10},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I |\hat{g}|1^J 1^K \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_{11},J_{10}} t_{I_8,K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_{11}, I_8, J_{10}, K_{13})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^A 1^I | \hat{g} | 1^J 1^K \rangle \langle A_1 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle I_8 | \hat{1}_{\beta}^- | I_0 \rangle \langle J_{10} | \hat{1}_{\alpha}^- | J_0 \rangle \langle K_{13} | \hat{1}_{\beta}^+ | K_0 \rangle t_{A_1} t_{B_{11}, J_{10}} t_{I_8, K_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_7,J_9,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\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_2} t_{B_{11},J_9} t_{I_7,K_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\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_2} t_{B_{11},J_9} t_{I_7,K_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\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_2} t_{B_{11},J_9} t_{I_7,K_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\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_2} t_{B_{11},J_9} t_{I_7,K_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\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_2} t_{B_{11},J_9} t_{I_7,K_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\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_2} t_{B_{11},J_9} t_{I_7,K_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\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_2} t_{B_{11},J_9} t_{A_14} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\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_14} t_{A_14$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_7,J_9,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^J 0^K \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle \langle K_{14} |\hat{0}^+_{\beta}|K_0 \rangle t_{A_3} t_{B_{11},J_9} t_{I_7,K_{14}} \rangle \langle I_7 |\hat{0}^+_{\beta}|I_0 \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle I_9 |\hat{0}^-_{\alpha}|J_0 \rangle \langle I_{14} |\hat{0}^+_{\beta}|K_0 \rangle t_{A_3} t_{B_{11},J_9} t_{I_7,K_{14}} \rangle \langle I_7 |\hat{0}^+_{\beta}|I_0 \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle I_9 |\hat{0}^-_{\alpha}|J_0 \rangle \langle I_{14} |\hat{0}^+_{\beta}|K_0 \rangle t_{A_3} t_{B_{11},J_9} t_{I_7,K_{14}} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle I_7 |I_0 \rangle \langle I_7 |I_0$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_8,J_9,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \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_{A_2} t_{B_{11},J_9} t_{I_8,K_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \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_{A_2} t_{B_{11},J_9} t_{I_8,K_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \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_{A_2} t_{B_{11},J_9} t_{I_8,K_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \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_{A_2} t_{B_{11},J_9} t_{I_8,K_{14}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \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_{A_2} t_{B_{11},J_9} t_{I_8,K_{14}} \\ &+ \frac{-1}{12} \sum_{K} \langle 1^A 1^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_8 |\hat{1}_{\beta}^- |I_0 \rangle \langle I_9 |\hat{0}_{\alpha}^- |J_0 \rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0 \rangle t_{A_2} t_{B_{11},J_9} t_{A_14} \\ &+ \frac{-1}{12} \sum_{K} \langle 1^A 1^I |\hat{g}|0^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle I_8 |\hat{1}_{\beta}^- |I_0 \rangle \langle I_9 |\hat{0}_{\alpha}^- |J_0 \rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0 \rangle t_{A_14} t_{A_14} \\ &+ \frac{-1}{12} \sum_{K} \langle 1^K 1^K |\hat{I}_{\alpha}^- |I_0 \rangle \langle I_1 |I$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_8, J_9, K_{14})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^J 0^K \rangle \langle A_3 |\hat{1}^+_{\alpha} |A_9\rangle \langle I_8 |\hat{1}^-_{\beta} |I_0\rangle \langle J_9 |\hat{0}^-_{\alpha} |J_0\rangle \langle K_{14} |\hat{0}^+_{\beta} |K_0\rangle t_{A_3} t_{B_{11}, J_9} t_{I_8, K_{14}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, B_{11}, I_7, J_{10}, K_{14})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I | \hat{g} | 1^J 0^K \rangle \langle A_2 | \hat{1}^+_{\alpha} | A_9 \rangle \langle I_7 | \hat{0}^-_{\beta} | I_0 \rangle \langle J_{10} | \hat{1}^-_{\alpha} | J_0 \rangle \langle K_{14} | \hat{0}^+_{\beta} | K_0 \rangle t_{A_2} t_{B_{11}, J_{10}} t_{I_7, K_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_7,J_{10},K_{14})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{I}\sum_{K}\langle 1^A0^I|\hat{g}|1^J0^K\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle\langle K_{14}|\hat{0}^+_{\beta}|K_0\rangle t_{A_3}t_{B_{11},J_{10}}t_{I_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_8,J_{10},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|1^J 0^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_2} t_{B_{11},J_{10}} t_{I_8,K_{14}} \rangle \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_8,J_{10},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|1^J 0^K \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_3} t_{B_{11},J_{10}} t_{I_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_7,J_9,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^J 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{A_2} t_{B_{11},J_9} t_{I_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_7,J_9,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|0^J 1^K \rangle \langle A_3|\hat{1}_{\alpha}^+ |A_9\rangle \langle I_7|\hat{0}_{\beta}^- |I_0\rangle \langle J_9|\hat{0}_{\alpha}^- |J_0\rangle \langle K_{13}|\hat{1}_{\beta}^+ |K_0\rangle t_{A_3} t_{B_{11},J_9} t_{I_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_8,J_9,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^J 1^K \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle \langle K_{13} |\hat{1}^+_{\beta}|K_0 \rangle t_{A_2} t_{B_{11},J_9} t_{I_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_8,J_9,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|0^J 1^K \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle \langle K_{13} |\hat{1}^+_{\beta}|K_0 \rangle t_{A_3} t_{B_{11},J_9} t_{I_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_7,J_{10},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I |\hat{g}|1^J 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{A_2} t_{B_{11},J_{10}} t_{I_7,K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_{11}, I_7, J_{10}, K_{13})\rangle =$$

$$+ \tfrac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 0^I | \hat{g} | 1^J 1^K \rangle \langle A_3 | \hat{1}^+_\alpha | A_9 \rangle \langle I_7 | \hat{0}^-_\beta | I_0 \rangle \langle J_{10} | \hat{1}^-_\alpha | J_0 \rangle \langle K_{13} | \hat{1}^+_\beta | K_0 \rangle t_{A_3} t_{B_{11}, J_{10}} t_{I_7, K_{13}} dt_{A_1, A_2, A_3} dt_{A_3} dt_{A_3}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_{11},I_8,J_{10},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^A 1^I |\hat{g}|1^J 1^K \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{A_2} t_{B_{11},J_{10}} t_{I_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_{11},I_8,J_{10},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^A 1^I |\hat{g}|1^J 1^K \rangle \langle A_3 |\hat{1}^+_{\alpha} |A_9\rangle \langle I_8 |\hat{1}^-_{\beta} |I_0\rangle \langle J_{10} |\hat{1}^-_{\alpha} |J_0\rangle \langle K_{13} |\hat{1}^+_{\beta} |K_0\rangle t_{A_3} t_{B_{11},J_{10}} t_{I_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{12},J_{12},K_9)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_2}t_{A_9,I_{12}}t_{J_{12},K_9}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|0^J0^K\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_2}t_{A_9,I_{12}}t_{J_{12},K_9}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_{12},K_9}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|0^J0^K\rangle\langle B_2|\hat{0}_\alpha^-|B_{11}\rangle\langle I_{12}|\hat{0}_\alpha^+|I_0\rangle\langle J_{12}|\hat{0}_\alpha^+|J_0\rangle\langle K_9|\hat{0}_\alpha^-|K_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_{12},K_9} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{12},J_{12},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{12},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{12},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{12},K_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{12},K_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{12},J_{14},K_7)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{K}\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_7|\hat{0}_{\beta}^-|K_0\rangle t_{B_2}t_{A_9,I_{12}}t_{J_{14},K_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{12},J_{14},K_7)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{K} \langle 0^B 0^J |\hat{g}|0^I 0^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{B_3} t_{A_9,I_{12}} t_{J_{14},K_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{12},J_{12},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{12},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{12},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{12}}t_{I_{12},K_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{12}}t_{I_{12},K_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{12},J_{12},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{12},K_{10}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{12},K_{10}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{12},K_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{12},K_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{12},J_{14},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^J |\hat{g}|0^I 1^K \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{12} |\hat{0}_\alpha^+ |I_0\rangle \langle J_{14} |\hat{0}_\beta^+ |J_0\rangle \langle K_8 |\hat{1}_\beta^- |K_0\rangle t_{B_2} t_{A_9,I_{12}} t_{J_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{12},J_{14},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^J |\hat{g}|0^I 1^K \rangle \langle B_3 |\hat{0}_\alpha^- |B_{11} \rangle \langle I_{12} |\hat{0}_\alpha^+ |I_0 \rangle \langle J_{14} |\hat{0}_\beta^+ |J_0 \rangle \langle K_8 |\hat{1}_\beta^- |K_0 \rangle t_{B_3} t_{A_9,I_{12}} t_{J_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{12},J_{12},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{12}}t_{J_{12},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{12}}t_{J_{12},K_{9}} \end{split}$$

$$\begin{split} &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B} 0^{J} | \hat{g} | 0^{I} 0^{K} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle t_{A_{9},J_{12}} t_{I_{12},K_{9}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B} 0^{I} | \hat{g} | 0^{J} 0^{K} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle t_{A_{9},J_{12}} t_{I_{12},K_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{12},J_{12},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{12}}t_{I_{12},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{12}}t_{I_{12},K_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{12}, J_{14}, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^J |\hat{g}|0^I 0^K \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{A_9, I_{12}} t_{J_{14}, K_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{12},J_{14},K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^J |\hat{g}|0^I 0^K \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle \langle K_7 |\hat{0}^-_{\beta}|K_0 \rangle t_{B_1} t_{A_9,I_{12}} t_{J_{14},K_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{12},J_{12},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{12}}t_{J_{12},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{12}}t_{J_{12},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{I_{12},K_{10}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{I_{12},K_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{12},J_{12},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{12},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{12},K_{10}} \end{split}$$

$$\begin{split} &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B} 0^{J} | \hat{g} | 0^{I} 1^{K} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle t_{B_{1}} t_{A_{9},J_{12}} t_{I_{12},K_{10}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B} 0^{I} | \hat{g} | 0^{J} 1^{K} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{10} | \hat{1}_{\alpha}^{-} | K_{0} \rangle t_{B_{1}} t_{A_{9},J_{12}} t_{I_{12},K_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{12},J_{14},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^J |\hat{g}|0^I 1^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{12}|\hat{0}^+_{\alpha}|I_0 \rangle \langle J_{14}|\hat{0}^+_{\beta}|J_0 \rangle \langle K_8 |\hat{1}^-_{\beta}|K_0 \rangle t_{A_9,I_{12}} t_{J_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{12},J_{14},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^J |\hat{g}|0^I 1^K \rangle \langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle \langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle \langle K_8|\hat{1}^-_{\beta}|K_0\rangle t_{B_1} t_{A_9,I_{12}} t_{J_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{12},J_{11},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{11},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{11},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{11}}t_{I_{12},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{11}}t_{I_{12},K_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{12},J_{11},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{11},K_{9}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{11},K_{9}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{12},K_{9}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{12},K_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_2, I_{12}, J_{13}, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^J |\hat{g}|0^I 0^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{B_2} t_{A_9, I_{12}} t_{J_{13}, K_7}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_3, I_{12}, J_{13}, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^J |\hat{g}|0^I 0^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{B_3} t_{A_9, I_{12}} t_{J_{13}, K_7}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{12},J_{11},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{11},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{11},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{11}}t_{I_{12},K_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{11}}t_{I_{12},K_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{12},J_{11},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{11},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{11},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{12},K_{10}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{12},K_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{12},J_{13},K_8)\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B1^J|\hat{g}|0^I1^K\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle\langle K_8|\hat{1}^-_{\beta}|K_0\rangle t_{B_2}t_{A_9,I_{12}}t_{J_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{12},J_{13},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^J |\hat{g}|0^I 1^K \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle \langle K_8 |\hat{1}^-_{\beta}|K_0 \rangle t_{B_3} t_{A_9,I_{12}} t_{J_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{12},J_{11},K_9)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^J |\hat{g}|0^I 0^K \rangle \langle B_0 |\hat{1}^-_\alpha |B_{11}\rangle \langle I_{12} |\hat{0}^+_\alpha |I_0\rangle \langle J_{11} |\hat{1}^+_\alpha |J_0\rangle \langle K_9 |\hat{0}^-_\alpha |K_0\rangle t_{A_9,I_{12}} t_{J_{11},K_9} \end{split}$$

$$\begin{split} & + \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B} 0^{I} | \hat{g} | 1^{J} 0^{K} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle t_{A_{9},I_{12}} t_{J_{11},K_{9}} \\ & + \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B} 1^{J} | \hat{g} | 0^{I} 0^{K} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle t_{A_{9},J_{11}} t_{I_{12},K_{9}} \\ & + \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B} 0^{I} | \hat{g} | 1^{J} 0^{K} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{11} | \hat{1}_{\alpha}^{+} | J_{0} \rangle \langle K_{9} | \hat{0}_{\alpha}^{-} | K_{0} \rangle t_{A_{9},J_{11}} t_{I_{12},K_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{12},J_{11},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{11},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{11},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{12},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{12},K_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{12}, J_{13}, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^J |\hat{g}|0^I 0^K \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{13}|\hat{1}_{\beta}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{A_9, I_{12}} t_{J_{13}, K_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{12},J_{13},K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^J |\hat{g}|0^I 0^K \rangle \langle B_1|\hat{1}_\alpha^- |B_{11}\rangle \langle I_{12}|\hat{0}_\alpha^+ |I_0\rangle \langle J_{13}|\hat{1}_\beta^+ |J_0\rangle \langle K_7|\hat{0}_\beta^- |K_0\rangle t_{B_1} t_{A_9,I_{12}} t_{J_{13},K_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{12},J_{11},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{12}}t_{J_{11},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{12}}t_{J_{11},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{I_{12},K_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{I_{12},K_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{12},J_{11},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B1^J|\hat{g}|0^I1^K\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle\langle K_{10}|\hat{1}^-_{\alpha}|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{11},K_{10}} \end{split}$$

$$\begin{split} &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{11},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{12},K_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{12},K_{10}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{12}, J_{13}, K_8)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^J |\hat{g}|0^I 1^K \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{A_9, I_{12}} t_{J_{13}, K_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{12},J_{13},K_8)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{K}\langle 1^B1^J|\hat{g}|0^I1^K\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_8|\hat{1}_{\beta}^-|K_0\rangle t_{B_1}t_{A_9,I_{12}}t_{J_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{11},J_{12},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{12}}t_{I_{11},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{12}}t_{I_{11},K_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{11},J_{12},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{12},K_{9}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{12},K_{9}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{11},K_{9}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{11},K_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{11},J_{14},K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^J |\hat{g}| 1^I 0^K \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11} |\hat{1}_\alpha^+ |I_0\rangle \langle J_{14} |\hat{0}_\beta^+ |J_0\rangle \langle K_7 |\hat{0}_\beta^- |K_0\rangle t_{B_2} t_{A_9,I_{11}} t_{J_{14},K_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{11},J_{14},K_7)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|1^I0^K\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_7|\hat{0}_{\beta}^-|K_0\rangle t_{B_3}t_{A_9,I_{11}}t_{J_{14},K_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{11},J_{12},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{12},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{12},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{12}}t_{I_{11},K_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{12}}t_{I_{11},K_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{11},J_{12},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{12},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{12},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{11},K_{10}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{11},K_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{11},J_{14},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^J |\hat{g}| 1^I 1^K \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11} |\hat{1}_\alpha^+ |I_0\rangle \langle J_{14} |\hat{0}_\beta^+ |J_0\rangle \langle K_8 |\hat{1}_\beta^- |K_0\rangle t_{B_2} t_{A_9,I_{11}} t_{J_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{11},J_{14},K_8)\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|1^I1^K\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_8|\hat{1}^-_{\beta}|K_0\rangle t_{B_3}t_{A_9,I_{11}}t_{J_{14},K_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{11}, J_{12}, K_9)\rangle =$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{I_{11},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{I_{11},K_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{11},J_{12},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{12},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{12}}t_{I_{11},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{12}}t_{I_{11},K_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{11}, J_{14}, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^J |\hat{g}|1^I 0^K \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_{14}|\hat{0}_{\beta}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{A_9, I_{11}} t_{J_{14}, K_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{11},J_{14},K_7)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B0^J|\hat{g}|1^I0^K\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_7|\hat{0}^-_{\beta}|K_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_{14},K_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{11},J_{12},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{12},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{12},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{I_{11},K_{10}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{12}}t_{I_{11},K_{10}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_1, I_{11}, J_{12}, K_{10})\rangle =$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{12},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{12},K_{10}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{12}}t_{I_{11},K_{10}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{12}}t_{I_{11},K_{10}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{11}, J_{14}, K_8)\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{K}\langle 1^B 0^J|\hat{g}|1^I 1^K\rangle\langle B_0|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle\langle K_8|\hat{1}_{\beta}^-|K_0\rangle t_{A_9, I_{11}}t_{J_{14}, K_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{11},J_{14},K_8)\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B0^J|\hat{g}|1^I1^K\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle\langle K_8|\hat{1}^-_{\beta}|K_0\rangle t_{B_1}t_{A_9,I_{11}}t_{J_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{11},J_{11},K_9)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B1^J|\hat{g}|1^I0^K\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{B_2}t_{A_9,I_{11}}t_{J_{11},K_9} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B1^I|\hat{g}|1^J0^K\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{B_2}t_{A_9,I_{11}}t_{J_{11},K_9} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B1^J|\hat{g}|1^I0^K\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_{11},K_9} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B1^I|\hat{g}|1^J0^K\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_9|\hat{0}_{\alpha}^{-}|K_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_{11},K_9} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{11},J_{11},K_{9})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{11},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{11},K_{9}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{11},K_{9}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{11},K_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_2, I_{11}, J_{13}, K_7)\rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{B} 1^{J} | \hat{g} | 1^{I} 0^{K} \rangle \langle B_{2} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{13} | \hat{1}_{\beta}^{+} | J_{0} \rangle \langle K_{7} | \hat{0}_{\beta}^{-} | K_{0} \rangle t_{B_{2}} t_{A_{9}, I_{11}} t_{J_{13}, K_{7}} dt_{A_{9}, I_{11}} dt_{A_{11}, K_{7}} dt_{A_{11}, K_{11}, K_{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{11},J_{13},K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^J |\hat{g}| 1^I 0^K \rangle \langle B_3 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{11} |\hat{1}_\alpha^+ |I_0\rangle \langle J_{13} |\hat{1}_\beta^+ |J_0\rangle \langle K_7 |\hat{0}_\beta^- |K_0\rangle t_{B_3} t_{A_9,I_{11}} t_{J_{13},K_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{11},J_{11},K_{10})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{11},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{11},K_{10}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{11}}t_{I_{11},K_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{11}}t_{I_{11},K_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{11},J_{11},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{11},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{11},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{11},K_{10}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{11},K_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{11},J_{13},K_8)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^J |\hat{g}| 1^I 1^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_{13}|\hat{1}_{\beta}^+ |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{B_2} t_{A_9,I_{11}} t_{J_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{11},J_{13},K_8)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{K} \langle 0^B 1^J |\hat{g}| 1^I 1^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{11} |\hat{1}_{\alpha}^+ |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{B_3} t_{A_9,I_{11}} t_{J_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{11},J_{11},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{I_{11},K_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{I_{11},K_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{11},J_{11},K_{9})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{11},K_{9}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{11},K_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{9}|\hat{0}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{11},K_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{11},J_{13},K_7)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{K} \langle 1^B 1^J |\hat{g}| 1^I 0^K \rangle \langle B_0 |\hat{1}^-_{\alpha} |B_{11}\rangle \langle I_{11} |\hat{1}^+_{\alpha} |I_0\rangle \langle J_{13} |\hat{1}^+_{\beta} |J_0\rangle \langle K_7 |\hat{0}^-_{\beta} |K_0\rangle t_{A_9,I_{11}} t_{J_{13},K_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{11},J_{13},K_7)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^J |\hat{g}| 1^I 0^K \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{11} |\hat{1}_{\alpha}^+ |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_{13},K_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{11},J_{11},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{11},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{11},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{I_{11},K_{10}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{A_{9},J_{11}}t_{I_{11},K_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{11},J_{11},K_{10})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{11},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{11},K_{10}} \\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{11},K_{10}} \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{10}|\hat{1}_{\alpha}^{-}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{11},K_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{11},J_{13},K_8)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{K} \langle 1^B 1^J |\hat{g}|1^I 1^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle \langle K_8|\hat{1}^-_{\beta}|K_0\rangle t_{A_9,I_{11}} t_{J_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{11},J_{13},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^J |\hat{g}| 1^I 1^K \rangle \langle B_1 |\hat{1}^-_{\alpha} |B_{11}\rangle \langle I_{11} |\hat{1}^+_{\alpha} |I_0\rangle \langle J_{13} |\hat{1}^+_{\beta} |J_0\rangle \langle K_8 |\hat{1}^-_{\beta} |K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{12},J_9,K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,I_{12}}t_{J_9,K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|0^K0^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,I_{12}}t_{J_9,K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,K_{12}}t_{I_{12},J_9}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|0^K0^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,K_{12}}t_{I_{12},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{12},J_9,K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_3}t_{A_9,I_{12}}t_{J_9,K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|0^K0^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_3}t_{A_9,I_{12}}t_{J_9,K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|0^I0^K\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_3}t_{A_9,K_{12}}t_{I_{12},J_9}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|0^K0^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_3}t_{A_9,K_{12}}t_{I_{12},J_9} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_2, I_{12}, J_7, K_{14})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^J |\hat{g}|0^I 0^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_2} t_{A_9, I_{12}} t_{J_7, K_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{12},J_7,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^J |\hat{g}|0^I 0^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_3} t_{A_9,I_{12}} t_{J_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{12},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{10},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{12}}t_{I_{12},J_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{12}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{12},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{10},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{12}}t_{I_{12},J_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{12}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{12},J_8,K_{14})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{I}\sum_{K}\langle 0^B1^J|\hat{g}|0^I0^K\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_{14}|\hat{0}_{\beta}^+|K_0\rangle t_{B_2}t_{A_9,I_{12}}t_{J_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{12},J_8,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^J |\hat{g}|0^I 0^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_3} t_{A_9,I_{12}} t_{J_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{12},J_{9},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{12}}t_{J_{9},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{12}}t_{J_{9},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{12},J_{9}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{12},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{12},J_{9},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{9},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{9},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{12}}t_{I_{12},J_{9}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{12}}t_{I_{12},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{12},J_7,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^J |\hat{g}|0^I 0^K \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_9,I_{12}} t_{J_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{12},J_7,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^J |\hat{g}|0^I 0^K \rangle \langle B_1 |\hat{1}^-_{\alpha} |B_{11}\rangle \langle I_{12} |\hat{0}^+_{\alpha} |I_0\rangle \langle J_7 |\hat{0}^-_{\beta} |J_0\rangle \langle K_{14} |\hat{0}^+_{\beta} |K_0\rangle t_{B_1} t_{A_9,I_{12}} t_{J_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{12},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{12}}t_{J_{10},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{12}}t_{J_{10},K_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{12},J_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{12},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{10},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|0^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{12}}t_{I_{12},J_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{12}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{12},J_8,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^J |\hat{g}|0^I 0^K \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_9,I_{12}} t_{J_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{12},J_8,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^J |\hat{g}|0^I 0^K \rangle \langle B_1 |\hat{1}^-_{\alpha} |B_{11}\rangle \langle I_{12} |\hat{0}^+_{\alpha} |I_0\rangle \langle J_8 |\hat{1}^-_{\beta} |J_0\rangle \langle K_{14} |\hat{0}^+_{\beta} |K_0\rangle t_{B_1} t_{A_9,I_{12}} t_{J_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{12},J_9,K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|0^I1^K\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{B_2}t_{A_9,I_{12}}t_{J_9,K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|1^K0^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{B_2}t_{A_9,I_{12}}t_{J_9,K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|0^I1^K\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{B_2}t_{A_9,K_{11}}t_{I_{12},J_9} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|1^K0^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{B_2}t_{A_9,K_{11}}t_{I_{12},J_9} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{12},J_{9},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{9},K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{11}}t_{I_{12},J_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{11}}t_{I_{12},J_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_2, I_{12}, J_7, K_{13})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^J |\hat{g}|0^I 1^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_2} t_{A_9, I_{12}} t_{J_7, K_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{12},J_7,K_{13})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|0^I1^K\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle\langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{B_3}t_{A_9,I_{12}}t_{J_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{12},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{12}}t_{J_{10},K_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{11}}t_{I_{12},J_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{11}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{12},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{12}}t_{J_{10},K_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{11}}t_{I_{12},J_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{11}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{12},J_8,K_{13})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{I}\sum_{K}\langle 0^B1^J|\hat{g}|0^I1^K\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_2}t_{A_9,I_{12}}t_{J_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{12},J_8,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^J |\hat{g}|0^I 1^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_3} t_{A_9,I_{12}} t_{J_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{12},J_{9},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{12}}t_{J_{9},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{12}}t_{J_{9},K_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{I_{12},J_{9}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{I_{12},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{12},J_{9},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{9},K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{12},J_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{12},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{12},J_7,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^J |\hat{g}|0^I 1^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle \langle J_7|\hat{0}^-_{\beta}|J_0\rangle \langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{A_9,I_{12}} t_{J_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{12},J_7,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^J |\hat{g}|0^I 1^K \rangle \langle B_1 |\hat{1}^-_{\alpha} |B_{11}\rangle \langle I_{12} |\hat{0}^+_{\alpha} |I_0\rangle \langle J_7 |\hat{0}^-_{\beta} |J_0\rangle \langle K_{13} |\hat{1}^+_{\beta} |K_0\rangle t_{B_1} t_{A_9,I_{12}} t_{J_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{12},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{12}}t_{J_{10},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{12}}t_{J_{10},K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{I_{12},J_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{12},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{12}}t_{J_{10},K_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|0^{I}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{12},J_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{12},J_8,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^J |\hat{g}|0^I 1^K \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{A_9,I_{12}} t_{J_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{12},J_8,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^J |\hat{g}|0^I 1^K \rangle \langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle \langle J_8|\hat{1}^-_{\beta}|J_0\rangle \langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{B_1} t_{A_9,I_{12}} t_{J_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{11},J_{9},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{9},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{9},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{12}}t_{I_{11},J_{9}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{12}}t_{I_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{11},J_9,K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|1^I0^K\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_3}t_{A_9,I_{11}}t_{J_9,K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B1^I|\hat{g}|0^K0^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_3}t_{A_9,I_{11}}t_{J_9,K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|1^I0^K\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_3}t_{A_9,K_{12}}t_{I_{11},J_9}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B1^I|\hat{g}|0^K0^J\rangle\langle B_3|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_0\rangle\langle J_9|\hat{0}_{\alpha}^{-}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_3}t_{A_9,K_{12}}t_{I_{11},J_9} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_2, I_{11}, J_7, K_{14})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^J |\hat{g}| 1^I 0^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{14}|\hat{0}_{\beta}^+ |K_0\rangle t_{B_2} t_{A_9, I_{11}} t_{J_7, K_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{11},J_7,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^J |\hat{g}| 1^I 0^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_3} t_{A_9,I_{11}} t_{J_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{11},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{10},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{12}}t_{I_{11},J_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{12}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{11},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{10},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{12}}t_{I_{11},J_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{12}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{11},J_8,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^J |\hat{g}| 1^I 0^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_8|\hat{1}_{\beta}^- |J_0\rangle \langle K_{14}|\hat{0}_{\beta}^+ |K_0\rangle t_{B_2} t_{A_9,I_{11}} t_{J_8,K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_3, I_{11}, J_8, K_{14})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^J | \hat{g} | 1^I 0^K \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_{11} | \hat{1}_{\alpha}^+ | I_0 \rangle \langle J_8 | \hat{1}_{\beta}^- | J_0 \rangle \langle K_{14} | \hat{0}_{\beta}^+ | K_0 \rangle t_{B_3} t_{A_9, I_{11}} t_{J_8, K_{14}} \rangle dt_{B_3} dt_{A_9, I_{11}} dt_{A_9, I_{11}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{11},J_{9},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{9},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{9},K_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{11},J_{9}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{11},J_{9},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{9},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{9},K_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{12}}t_{I_{11},J_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{12}}t_{I_{11},J_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{11}, J_7, K_{14})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^J |\hat{g}| 1^I 0^K \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_9, I_{11}} t_{J_7, K_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{11},J_7,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^J |\hat{g}|1^I 0^K \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{11} |\hat{1}_{\alpha}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{11},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{10},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{10},K_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{11},J_{10}} \end{split}$$

$$+ \tfrac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B} 1^{I} | \hat{g} | 0^{K} 1^{J} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{12} | \hat{0}_{\alpha}^{+} | K_{0} \rangle t_{A_{9}, K_{12}} t_{I_{11}, J_{10}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{11},J_{10},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|1^{I}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{10},K_{12}}t_{A_{11}}t_{A_{11},K_{12}}t_{A_{11}}t_{A_{12},K_{12}}t_{A_{11}}t_{A_{12},K_{12}}t_{A_{11}}t_{A_{12},K_{12}}t_{A_{12},K_{12}}t_{A_{12},K_{12},K_{12}}t_{A_{12},K_{12},K_{12},K_{12}}t_{A_{12},K_{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{11},J_8,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^J |\hat{g}|1^I 0^K \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_8|\hat{1}_{\beta}^- |J_0\rangle \langle K_{14}|\hat{0}_{\beta}^+ |K_0\rangle t_{A_9,I_{11}} t_{J_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{11},J_8,K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^J |\hat{g}|1^I 0^K \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{11} |\hat{1}_{\alpha}^+ |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{11},J_{9},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{9},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{9},K_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{11}}t_{I_{11},J_{9}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{11}}t_{I_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{11},J_9,K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|1^I1^K\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{B_3}t_{A_9,I_{11}}t_{J_9,K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B1^I|\hat{g}|1^K0^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{B_3}t_{A_9,I_{11}}t_{J_9,K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^J|\hat{g}|1^I1^K\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{B_3}t_{A_9,K_{11}}t_{I_{11},J_9} \end{split}$$

$$+ \tfrac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I | \hat{g} | 1^K 0^J \rangle \langle B_3 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_{11} | \hat{1}_{\alpha}^+ | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle \langle K_{11} | \hat{1}_{\alpha}^+ | K_0 \rangle t_{B_3} t_{A_9, K_{11}} t_{I_{11}, J_9}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{11},J_7,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^J |\hat{g}| 1^I 1^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{11} |\hat{1}_{\alpha}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_2} t_{A_9,I_{11}} t_{J_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{11},J_7,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^J |\hat{g}| 1^I 1^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{11} |\hat{1}_{\alpha}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_3} t_{A_9,I_{11}} t_{J_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{11},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{10},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},I_{11}}t_{J_{10},K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{11}}t_{I_{11},J_{10}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{11}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{11},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},I_{11}}t_{J_{10},K_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{11}}t_{I_{11},J_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{11}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{11},J_8,K_{13})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{I}\sum_{K}\langle 0^B1^J|\hat{g}|1^I1^K\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_8|\hat{1}_{\beta}^-|J_0\rangle\langle K_{13}|\hat{1}_{\beta}^+|K_0\rangle t_{B_2}t_{A_9,I_{11}}t_{J_8,K_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_3, I_{11}, J_8, K_{13})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^J |\hat{g}| 1^I 1^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{11} |\hat{1}_{\alpha}^+ |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_3} t_{A_9, I_{11}} t_{J_8, K_{13}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{11},J_{9},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{9},K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{I_{11},J_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{I_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{11},J_{9},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{9},K_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{11},J_{9}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{11},J_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{11}, J_7, K_{13})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^J |\hat{g}| 1^I 1^K \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{13}|\hat{1}_{\beta}^+ |K_0\rangle t_{A_9, I_{11}} t_{J_7, K_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{11},J_7,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^J |\hat{g}|1^I 1^K \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle \langle K_{13} |\hat{1}^+_{\beta}|K_0 \rangle t_{B_1} t_{A_9,I_{11}} t_{J_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{11},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{10},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},I_{11}}t_{J_{10},K_{11}} \end{split}$$

$$\begin{split} &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B} 1^{J} | \hat{g} | 1^{I} 1^{K} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{11} | \hat{1}_{\alpha}^{+} | K_{0} \rangle t_{A_{9},K_{11}} t_{I_{11},J_{10}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B} 1^{I} | \hat{g} | 1^{K} 1^{J} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{11} | \hat{1}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle \langle K_{11} | \hat{1}_{\alpha}^{+} | K_{0} \rangle t_{A_{9},K_{11}} t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{11},J_{10},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},I_{11}}t_{J_{10},K_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{J}|\hat{g}|1^{I}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{11},J_{10}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{11},J_8,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^J |\hat{g}| 1^I 1^K \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^+ |I_0\rangle \langle J_8|\hat{1}_{\beta}^- |J_0\rangle \langle K_{13}|\hat{1}_{\beta}^+ |K_0\rangle t_{A_9,I_{11}} t_{J_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{11},J_8,K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^J |\hat{g}|1^I 1^K \rangle \langle B_1 |\hat{1}^-_{\alpha} |B_{11}\rangle \langle I_{11} |\hat{1}^+_{\alpha} |I_0\rangle \langle J_8 |\hat{1}^-_{\beta} |J_0\rangle \langle K_{13} |\hat{1}^+_{\beta} |K_0\rangle t_{B_1} t_{A_9,I_{11}} t_{J_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{14},J_{12},K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I |\hat{g}|0^J 0^K \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{14} |\hat{0}_\beta^+ |I_0\rangle \langle J_{12} |\hat{0}_\alpha^+ |J_0\rangle \langle K_7 |\hat{0}_\beta^- |K_0\rangle t_{B_2} t_{A_9,J_{12}} t_{I_{14},K_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{14},J_{12},K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I |\hat{g}|0^J 0^K \rangle \langle B_3 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{14} |\hat{0}_\beta^+ |I_0\rangle \langle J_{12} |\hat{0}_\alpha^+ |J_0\rangle \langle K_7 |\hat{0}_\beta^- |K_0\rangle t_{B_3} t_{A_9,J_{12}} t_{I_{14},K_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{14},J_{12},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I |\hat{g}|0^J 1^K \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_{14} |\hat{0}_\beta^+ |I_0\rangle \langle J_{12} |\hat{0}_\alpha^+ |J_0\rangle \langle K_8 |\hat{1}_\beta^- |K_0\rangle t_{B_2} t_{A_9,J_{12}} t_{I_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{14},J_{12},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I |\hat{g}|0^J 1^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{B_3} t_{A_9,J_{12}} t_{I_{14},K_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{14}, J_{12}, K_7)\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B 0^I|\hat{g}|0^J 0^K\rangle \langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle \langle K_7|\hat{0}^-_{\beta}|K_0\rangle t_{A_9, J_{12}}t_{I_{14}, K_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{14},J_{12},K_7)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{K}\langle 1^B0^I|\hat{g}|0^J0^K\rangle\langle B_1|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_7|\hat{0}_{\beta}^{-}|K_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_{14},K_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{14},J_{12},K_8)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|0^J 1^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle \langle K_8 |\hat{1}^-_{\beta}|K_0\rangle t_{A_9,J_{12}} t_{I_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{14},J_{12},K_8)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|0^J 1^K \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{13},J_{12},K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I |\hat{g}|0^J 0^K \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_{12} |\hat{0}^+_{\alpha}|J_0 \rangle \langle K_7 |\hat{0}^-_{\beta}|K_0 \rangle t_{B_2} t_{A_9,J_{12}} t_{I_{13},K_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{13},J_{12},K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I |\hat{g}|0^J 0^K \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_{12} |\hat{0}^+_{\alpha}|J_0 \rangle \langle K_7 |\hat{0}^-_{\beta}|K_0 \rangle t_{B_3} t_{A_9,J_{12}} t_{I_{13},K_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{13},J_{12},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I |\hat{g}|0^J 1^K \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_{12} |\hat{0}^+_{\alpha}|J_0 \rangle \langle K_8 |\hat{1}^-_{\beta}|K_0 \rangle t_{B_2} t_{A_9,J_{12}} t_{I_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{13},J_{12},K_8)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{I} \sum_{K} \langle 0^B 1^I |\hat{g}|0^J 1^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{B_3} t_{A_9,J_{12}} t_{I_{13},K_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{13}, J_{12}, K_7)\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_7|\hat{0}^-_{\beta}|K_0\rangle t_{A_9, J_{12}}t_{I_{13}, K_7}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_1, I_{13}, J_{12}, K_7)\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B 1^I|\hat{g}|0^J 0^K\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_7|\hat{0}^-_{\beta}|K_0\rangle t_{B_1}t_{A_9, J_{12}}t_{I_{13}, K_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{13},J_{12},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I |\hat{g}|0^J 1^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_{12} |\hat{0}^+_{\alpha}|J_0 \rangle \langle K_8 |\hat{1}^-_{\beta}|K_0 \rangle t_{A_9,J_{12}} t_{I_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{13},J_{12},K_8)\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B1^I|\hat{g}|0^J1^K\rangle\langle B_1|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_8|\hat{1}_{\beta}^{-}|K_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{14},J_{11},K_7)\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{K} \langle 0^B 0^I |\hat{g}| 1^J 0^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{B_2} t_{A_9,J_{11}} t_{I_{14},K_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_3, I_{14}, J_{11}, K_7)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^I |\hat{g}| 1^J 0^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{B_3} t_{A_9, J_{11}} t_{I_{14}, K_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{14},J_{11},K_8)\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|1^J1^K\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle\langle K_8|\hat{1}_{\beta}^-|K_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{14},J_{11},K_8)\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|1^J1^K\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{14}|\hat{0}_{\beta}^+|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle\langle K_8|\hat{1}_{\beta}^-|K_0\rangle t_{B_3}t_{A_9,J_{11}}t_{I_{14},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{14},J_{11},K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I |\hat{g}|1^J 0^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_{11} |\hat{1}^+_{\alpha}|J_0 \rangle \langle K_7 |\hat{0}^-_{\beta}|K_0 \rangle t_{A_9,J_{11}} t_{I_{14},K_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{14},J_{11},K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I |\hat{g}|1^J 0^K \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_{11} |\hat{1}^+_{\alpha}|J_0 \rangle \langle K_7 |\hat{0}^-_{\beta}|K_0 \rangle t_{B_1} t_{A_9,J_{11}} t_{I_{14},K_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{14}, J_{11}, K_8)\rangle =$$

$$+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B 0^I|\hat{g}|1^J 1^K\rangle\langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle\langle K_8|\hat{1}^-_{\beta}|K_0\rangle t_{A_9, J_{11}}t_{I_{14}, K_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{14},J_{11},K_8)\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B0^I|\hat{g}|1^J1^K\rangle\langle B_1|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{14}|\hat{0}_{\beta}^{+}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_8|\hat{1}_{\beta}^{-}|K_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_{14},K_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_2, I_{13}, J_{11}, K_7)\rangle =$$

$$+ \tfrac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I | \hat{g} | 1^J 0^K \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_{13} | \hat{1}_{\beta}^+ | I_0 \rangle \langle J_{11} | \hat{1}_{\alpha}^+ | J_0 \rangle \langle K_7 | \hat{0}_{\beta}^- | K_0 \rangle t_{B_2} t_{A_9, J_{11}} t_{I_{13}, K_7} \rangle dt_{A_9, J_{11}} t_{A_9, J_{11}} t_$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{13},J_{11},K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I |\hat{g}|1^J 0^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0\rangle \langle K_7 |\hat{0}_{\beta}^- |K_0\rangle t_{B_3} t_{A_9,J_{11}} t_{I_{13},K_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_2, I_{13}, J_{11}, K_8)\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I |\hat{g}| 1^J 1^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{B_2} t_{A_9, J_{11}} t_{I_{13}, K_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{13},J_{11},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I |\hat{g}|1^J 1^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0\rangle \langle K_8 |\hat{1}_{\beta}^- |K_0\rangle t_{B_3} t_{A_9,J_{11}} t_{I_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{13},J_{11},K_7)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I |\hat{g}|1^J 0^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0 \rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0 \rangle \langle K_7 |\hat{0}^-_{\beta}|K_0 \rangle t_{A_9,J_{11}} t_{I_{13},K_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{13},J_{11},K_7)\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B1^I|\hat{g}|1^J0^K\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle\langle K_7|\hat{0}^-_{\beta}|K_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_{13},K_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{13},J_{11},K_8)\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I |\hat{g}|1^J 1^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_{11} |\hat{1}^+_{\alpha}|J_0 \rangle \langle K_8 |\hat{1}^-_{\beta}|K_0 \rangle t_{A_9,J_{11}} t_{I_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{13},J_{11},K_8)\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B1^I|\hat{g}|1^J1^K\rangle\langle B_1|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_8|\hat{1}_{\beta}^{-}|K_0\rangle t_{B_1}t_{A_9,J_{11}}t_{I_{13},K_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_9,J_{12},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|0^J0^K\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_9,K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|0^K0^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_9,K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|0^J0^K\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,K_{12}}t_{I_9,J_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|0^K0^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,K_{12}}t_{I_9,J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{9},J_{12},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{9},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{9},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{12}}t_{I_{9},J_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{12}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_7,J_{12},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I |\hat{g}|0^J 0^K \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_7 |\hat{0}_\beta^- |I_0\rangle \langle J_{12} |\hat{0}_\alpha^+ |J_0\rangle \langle K_{14} |\hat{0}_\beta^+ |K_0\rangle t_{B_2} t_{A_9,J_{12}} t_{I_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_7,J_{12},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I |\hat{g}|0^J 0^K \rangle \langle B_3 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_7 |\hat{0}_\beta^- |I_0\rangle \langle J_{12} |\hat{0}_\alpha^+ |J_0\rangle \langle K_{14} |\hat{0}_\beta^+ |K_0\rangle t_{B_3} t_{A_9,J_{12}} t_{I_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{10},J_{12},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{12}}t_{I_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{12}}t_{I_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{12}}t_{I_{10},J_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{12}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{10},J_{12},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{12}}t_{I_{10},J_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{12}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_8,J_{12},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I |\hat{g}|0^J 0^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_2} t_{A_9,J_{12}} t_{I_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_8,J_{12},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I |\hat{g}|0^J 0^K \rangle \langle B_3 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_8 |\hat{1}_\beta^- |I_0\rangle \langle J_{12} |\hat{0}_\alpha^+ |J_0\rangle \langle K_{14} |\hat{0}_\beta^+ |K_0\rangle t_{B_3} t_{A_9,J_{12}} t_{I_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{9},J_{12},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},J_{12}}t_{I_{9},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},J_{12}}t_{I_{9},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_9,J_{12},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B0^I|\hat{g}|0^J0^K\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_9,K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B0^I|\hat{g}|0^K0^J\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_9,J_{12}}t_{I_9,K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B0^I|\hat{g}|0^J0^K\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_9,J_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B0^I|\hat{g}|0^K0^J\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_9|\hat{0}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_9,J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_7,J_{12},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|0^J 0^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{12} |\hat{0}^+_{\alpha}|J_0 \rangle \langle K_{14} |\hat{0}^+_{\beta}|K_0 \rangle t_{A_9,J_{12}} t_{I_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_7,J_{12},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|0^J 0^K \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{12} |\hat{0}^+_{\alpha}|J_0 \rangle \langle K_{14} |\hat{0}^+_{\beta}|K_0 \rangle t_{B_1} t_{A_9,J_{12}} t_{I_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{10},J_{12},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},J_{12}}t_{I_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},J_{12}}t_{I_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{10},J_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{10},J_{12},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{12}}t_{I_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{12}}t_{I_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{12}}t_{I_{10},J_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{12}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_8,J_{12},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^I |\hat{g}|0^J 0^K \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{A_9,J_{12}} t_{I_8,K_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_1, I_8, J_{12}, K_{14})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B} 1^{I} | \hat{g} | 0^{J} 0^{K} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{8} | \hat{1}_{\beta}^{-} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{14} | \hat{0}_{\beta}^{+} | K_{0} \rangle t_{B_{1}} t_{A_{9}, J_{12}} t_{I_{8}, K_{14}} dt_{A_{9}, J_{12}} dt_{A_{12}, K_{14}} dt_{A_{12}, K_{14}} dt_{A_{14}, K_{14}, K_{14}} dt_{A_{14}, K_{14}, K$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_9,J_{12},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|0^J1^K\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_9,K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|1^K0^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,J_{12}}t_{I_9,K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|0^J1^K\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,K_{11}}t_{I_9,J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|1^K0^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,K_{11}}t_{I_9,J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{9},J_{12},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{11}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{11}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_7,J_{12},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^I |\hat{g}|0^J 1^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_2} t_{A_9,J_{12}} t_{I_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_7,J_{12},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I |\hat{g}|0^J 1^K \rangle \langle B_3 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_7 |\hat{0}_\beta^- |I_0\rangle \langle J_{12} |\hat{0}_\alpha^+ |J_0\rangle \langle K_{13} |\hat{1}_\beta^+ |K_0\rangle t_{B_3} t_{A_9,J_{12}} t_{I_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{10},J_{12},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{12}}t_{I_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{12}}t_{I_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{11}}t_{I_{10},J_{12}} \end{split}$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I | \hat{g} | 1^K 0^J \rangle \langle B_2 | \hat{0}_{\alpha}^- | B_{11} \rangle \langle I_{10} | \hat{1}_{\alpha}^- | I_0 \rangle \langle J_{12} | \hat{0}_{\alpha}^+ | J_0 \rangle \langle K_{11} | \hat{1}_{\alpha}^+ | K_0 \rangle t_{B_2} t_{A_9, K_{11}} t_{I_{10}, J_{12}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{10},J_{12},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{12}}t_{I_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{11}}t_{I_{10},J_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{11}}t_{I_{10},J_{12}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_2, I_8, J_{12}, K_{13})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I |\hat{g}|0^J 1^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_2} t_{A_9, J_{12}} t_{I_8, K_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_8,J_{12},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I |\hat{g}|0^J 1^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_3} t_{A_9,J_{12}} t_{I_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{9},J_{12},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},J_{12}}t_{I_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},J_{12}}t_{I_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{9},J_{12},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{12}}t_{I_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{12}}t_{I_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{9},J_{12}} \end{split}$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B} 0^{I} | \hat{g} | 1^{K} 0^{J} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{9} | \hat{0}_{\alpha}^{-} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle \langle K_{11} | \hat{1}_{\alpha}^{+} | K_{0} \rangle t_{B_{1}} t_{A_{9}, K_{11}} t_{I_{9}, J_{12}} dt_{A_{9}, K_{11}} dt_{A_{11}} dt_{A_{12}, K_{12}} dt_{A_{12}, K_{12}} dt_{A_{12}, K_{12}} dt_{A_{12}, K_{12}, K_{12}} dt_{A_{12}, K_{12}, K$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_7,J_{12},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|0^J 1^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{12} |\hat{0}^+_{\alpha}|J_0 \rangle \langle K_{13} |\hat{1}^+_{\beta}|K_0 \rangle t_{A_9,J_{12}} t_{I_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{7},J_{12},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B}0^{I}|\hat{g}|0^{J}1^{K}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle \langle K_{13}|\hat{1}_{\beta}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{12}}t_{I_{7},K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{10},J_{12},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},J_{12}}t_{I_{10},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},J_{12}}t_{I_{10},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{10},J_{12},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{12}}t_{I_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{12}}t_{I_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{J}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{10},J_{12}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}0^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_8,J_{12},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^I |\hat{g}|0^J 1^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{12} |\hat{0}^+_{\alpha}|J_0 \rangle \langle K_{13} |\hat{1}^+_{\beta}|K_0 \rangle t_{A_9,J_{12}} t_{I_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_8,J_{12},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^I |\hat{g}|0^J 1^K \rangle \langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_8|\hat{1}^-_{\beta}|I_0\rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle \langle K_{13}|\hat{1}^+_{\beta}|K_0\rangle t_{B_1} t_{A_9,J_{12}} t_{I_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{9},J_{11},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{11}}t_{I_{9},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{11}}t_{I_{9},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{12}}t_{I_{9},J_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{12}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{9},J_{11},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{9},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{9},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{12}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{12}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_7,J_{11},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I |\hat{g}|1^J 0^K \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_7 |\hat{0}_\beta^- |I_0\rangle \langle J_{11} |\hat{1}_\alpha^+ |J_0\rangle \langle K_{14} |\hat{0}_\beta^+ |K_0\rangle t_{B_2} t_{A_9,J_{11}} t_{I_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_7,J_{11},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^I |\hat{g}| 1^J 0^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_3} t_{A_9,J_{11}} t_{I_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{2},I_{10},J_{11},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{11}}t_{I_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{11}}t_{I_{10},K_{12}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{12}}t_{I_{10},J_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{12}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{10},J_{11},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{12}}t_{I_{10},J_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{12}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_8,J_{11},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I |\hat{g}|1^J 0^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0\rangle \langle K_{14} |\hat{0}_{\beta}^+ |K_0\rangle t_{B_2} t_{A_9,J_{11}} t_{I_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_8,J_{11},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I |\hat{g}|1^J 0^K \rangle \langle B_3 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_8 |\hat{1}_\beta^- |I_0\rangle \langle J_{11} |\hat{1}_\alpha^+ |J_0\rangle \langle K_{14} |\hat{0}_\beta^+ |K_0\rangle t_{B_3} t_{A_9,J_{11}} t_{I_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{9},J_{11},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},J_{11}}t_{I_{9},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},J_{11}}t_{I_{9},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{9},J_{11},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{9},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{9},K_{12}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{12}}t_{I_{9},J_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{12}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_7,J_{11},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|1^J 0^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{11} |\hat{1}^+_{\alpha}|J_0 \rangle \langle K_{14} |\hat{0}^+_{\beta}|K_0 \rangle t_{A_9,J_{11}} t_{I_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_7,J_{11},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|1^J 0^K \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_7 |\hat{0}^-_{\beta}|I_0\rangle \langle J_{11} |\hat{1}^+_{\alpha}|J_0\rangle \langle K_{14} |\hat{0}^+_{\beta}|K_0\rangle t_{B_1} t_{A_9,J_{11}} t_{I_7,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{10},J_{11},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},J_{11}}t_{I_{10},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},J_{11}}t_{I_{10},K_{12}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{10},J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{12}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{10},J_{11},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{10},K_{12}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}0^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{12}}t_{I_{10},J_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|0^{K}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{12}|\hat{0}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{12}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_8,J_{11},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I |\hat{g}|1^J 0^K \rangle \langle B_0 |\hat{1}^-_{\alpha} |B_{11}\rangle \langle I_8 |\hat{1}^-_{\beta} |I_0\rangle \langle J_{11} |\hat{1}^+_{\alpha} |J_0\rangle \langle K_{14} |\hat{0}^+_{\beta} |K_0\rangle t_{A_9,J_{11}} t_{I_8,K_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_8,J_{11},K_{14})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^I |\hat{g}|1^J 0^K \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{11} |\hat{1}^+_{\alpha}|J_0 \rangle \langle K_{14} |\hat{0}^+_{\beta}|K_0 \rangle t_{B_1} t_{A_9,J_{11}} t_{I_8,K_{14}} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle I_{11} |\hat{1}^+_{\alpha}|J_0 \rangle \langle I_{14} |\hat{0}^+_{\beta}|K_0 \rangle t_{B_1} t_{A_9,J_{11}} t_{I_8,K_{14}} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle I_{11} |\hat{1}^+_{\alpha}|J_0 \rangle \langle I_{12} |\hat{0}^+_{\beta}|K_0 \rangle t_{B_1} t_{A_9,J_{11}} t_{I_8,K_{14}} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle I_1 |\hat{1}^+_{\alpha}|I_0 \rangle \langle I_1 |\hat{0}^+_{\beta}|K_0 \rangle t_{B_1} t_{A_9,J_{11}} t_{I_8,K_{14}} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle I_1 |\hat{1}^+_{\alpha}|I_0 \rangle \langle I_1 |\hat{0}^+_{\beta}|K_0 \rangle t_{B_1} t_{A_9,J_{11}} t_{I_8,K_{14}} \rangle \langle I_1 |\hat{0}^+_{\beta}|K_0 \rangle t_{B_1} t_{A_9,J_{11}} t_{A_9,J_{11}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_9,J_{11},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|1^J1^K\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_9,K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|1^K1^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,J_{11}}t_{I_9,K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|1^J1^K\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,K_{11}}t_{I_9,J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|1^K1^J\rangle\langle B_2|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^{-}|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_0\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_0\rangle t_{B_2}t_{A_9,K_{11}}t_{I_9,J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{9},J_{11},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{9},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{11}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{11}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_7,J_{11},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^I |\hat{g}|1^J 1^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_2} t_{A_9,J_{11}} t_{I_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_7,J_{11},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I |\hat{g}|1^J 1^K \rangle \langle B_3 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_7 |\hat{0}_\beta^- |I_0\rangle \langle J_{11} |\hat{1}_\alpha^+ |J_0\rangle \langle K_{13} |\hat{1}_\beta^+ |K_0\rangle t_{B_3} t_{A_9,J_{11}} t_{I_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{10},J_{11},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I |\hat{g}|1^J 1^K \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{10} |\hat{1}^-_{\alpha}|I_0 \rangle \langle J_{11} |\hat{1}^+_{\alpha}|J_0 \rangle \langle K_{11} |\hat{1}^+_{\alpha}|K_0 \rangle t_{B_2} t_{A_9,J_{11}} t_{I_{10},K_{11}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},J_{11}}t_{I_{10},K_{11}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{11}}t_{I_{10},J_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{2}}t_{A_{9},K_{11}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{3},I_{10},J_{11},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{10},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},J_{11}}t_{I_{10},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{11}}t_{I_{10},J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{3}}t_{A_{9},K_{11}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_8,J_{11},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I |\hat{g}|1^J 1^K \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_2} t_{A_9,J_{11}} t_{I_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_8,J_{11},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I |\hat{g}|1^J 1^K \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{B_3} t_{A_9,J_{11}} t_{I_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_9,J_{11},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|1^J 1^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0 \rangle \langle K_{11}|\hat{1}^+_{\alpha}|K_0 \rangle t_{A_9,J_{11}} t_{I_9,K_{11}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|1^K 1^J \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0 \rangle \langle K_{11}|\hat{1}^+_{\alpha}|K_0 \rangle t_{A_9,J_{11}} t_{I_9,K_{11}} \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|1^J 1^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0 \rangle \langle K_{11}|\hat{1}^+_{\alpha}|K_0 \rangle t_{A_9,K_{11}} t_{I_9,J_{11}} \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|1^K 1^J \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0 \rangle \langle K_{11}|\hat{1}^+_{\alpha}|K_0 \rangle t_{A_9,K_{11}} t_{I_9,J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{9},J_{11},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B}0^{I}|\hat{g}|1^{J}1^{K}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle \langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{9},K_{11}} \end{split}$$

$$\begin{split} &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{9},K_{11}}\\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{9},J_{11}}\\ &+\frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}0^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_7,J_{11},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|1^J 1^K \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0\rangle \langle K_{13} |\hat{1}_{\beta}^+ |K_0\rangle t_{A_9,J_{11}} t_{I_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_7,J_{11},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|1^J 1^K \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{11} |\hat{1}^+_{\alpha}|J_0 \rangle \langle K_{13} |\hat{1}^+_{\beta}|K_0 \rangle t_{B_1} t_{A_9,J_{11}} t_{I_7,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{10},J_{11},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},J_{11}}t_{I_{10},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},J_{11}}t_{I_{10},K_{11}} \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{I_{10},J_{11}} \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},B_{1},I_{10},J_{11},K_{11})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},J_{11}}t_{I_{10},K_{11}}\\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{J}1^{K}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{10},J_{11}}\\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{B_{1}}t_{A_{9},K_{11}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_8,J_{11},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I |\hat{g}|1^J 1^K \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{11} |\hat{1}^+_{\alpha}|J_0 \rangle \langle K_{13} |\hat{1}^+_{\beta}|K_0 \rangle t_{A_9,J_{11}} t_{I_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_8,J_{11},K_{13})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^I |\hat{g}|1^J 1^K \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{11} |\hat{1}^+_{\alpha}|J_0 \rangle \langle K_{13} |\hat{1}^+_{\beta}|K_0 \rangle t_{B_1} t_{A_9,J_{11}} t_{I_8,K_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{14},J_7,K_{12})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^I |\hat{g}|0^K 0^J \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{B_2} t_{A_9,K_{12}} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{14},J_7,K_{12})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{I}\sum_{K}\langle 0^B0^I|\hat{g}|0^K0^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_3}t_{A_9,K_{12}}t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{14},J_8,K_{12})\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I |\hat{g}|0^K 1^J \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle \langle K_{12} |\hat{0}^+_{\alpha}|K_0 \rangle t_{B_2} t_{A_9,K_{12}} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{14},J_8,K_{12})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^I |\hat{g}|0^K 1^J \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{B_3} t_{A_9,K_{12}} t_{I_{14},J_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{14}, J_7, K_{12})\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{I} \sum_{K} \langle 1^B 0^I |\hat{g}|0^K 0^J \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{A_9, K_{12}} t_{I_{14}, J_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{14},J_7,K_{12})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|0^K 0^J \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{B_1} t_{A_9,K_{12}} t_{I_{14},J_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{14}, J_8, K_{12})\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|0^K 1^J \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_8 |\hat{1}_{\beta}^- |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{A_9, K_{12}} t_{I_{14}, J_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{14},J_8,K_{12})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B0^I|\hat{g}|0^K1^J\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{13},J_7,K_{12})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B1^I|\hat{g}|0^K0^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^+|I_0\rangle\langle J_7|\hat{0}_{\beta}^-|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{B_2}t_{A_9,K_{12}}t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{13},J_7,K_{12})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I |\hat{g}|0^K 0^J \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{B_3} t_{A_9,K_{12}} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{13},J_8,K_{12})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B1^I|\hat{g}|0^K1^J\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_2}t_{A_9,K_{12}}t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{13},J_8,K_{12})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B1^I|\hat{g}|0^K1^J\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_3}t_{A_9,K_{12}}t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{13},J_7,K_{12})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{K} \langle 1^B 1^I |\hat{g}|0^K 0^J \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{13}|\hat{1}_{\beta}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{12}|\hat{0}_{\alpha}^+ |K_0\rangle t_{A_9,K_{12}} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{13},J_7,K_{12})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B1^I|\hat{g}|0^K0^J\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle\langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_9,K_{12}}t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{13},J_8,K_{12})\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I |\hat{g}|0^K 1^J \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_8|\hat{1}^-_{\beta}|J_0\rangle \langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,K_{12}} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{13},J_8,K_{12})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^I |\hat{g}|0^K 1^J \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle \langle K_{12} |\hat{0}^+_{\alpha}|K_0 \rangle t_{B_1} t_{A_9,K_{12}} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{14},J_7,K_{11})\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I |\hat{g}| 1^K 0^J \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle \langle K_{11} |\hat{1}^+_{\alpha}|K_0 \rangle t_{B_2} t_{A_9,K_{11}} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{14},J_7,K_{11})\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I |\hat{g}| 1^K 0^J \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle \langle K_{11} |\hat{1}^+_{\alpha}|K_0 \rangle t_{B_3} t_{A_9,K_{11}} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{14},J_8,K_{11})\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I |\hat{g}| 1^K 1^J \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle \langle K_{11} |\hat{1}^+_{\alpha}|K_0 \rangle t_{B_2} t_{A_9,K_{11}} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{14},J_8,K_{11})\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 0^I |\hat{g}| 1^K 1^J \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle \langle K_{11} |\hat{1}^+_{\alpha}|K_0 \rangle t_{B_3} t_{A_9,K_{11}} t_{I_{14},J_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{14}, J_7, K_{11})\rangle =$$

$$+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^{B} 0^{I} | \hat{g} | 1^{K} 0^{J} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{14} | \hat{0}_{\beta}^{+} | I_{0} \rangle \langle J_{7} | \hat{0}_{\beta}^{-} | J_{0} \rangle \langle K_{11} | \hat{1}_{\alpha}^{+} | K_{0} \rangle t_{A_{9}, K_{11}} t_{I_{14}, J_{7}} \langle I_{14} | \hat{0}_{\beta}^{+} | I_{14} \rangle \langle I_{14} | I_{14} \rangle \langle I_{14$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{14},J_7,K_{11})\rangle = \\ &+\frac{1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 1^B0^I|\hat{g}|1^K0^J\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle\langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{B_1}t_{A_9,K_{11}}t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_{14},J_8,K_{11})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|1^K 1^J \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_8|\hat{1}^-_{\beta}|J_0\rangle \langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{A_9,K_{11}} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{14},J_8,K_{11})\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I |\hat{g}|1^K 1^J \rangle \langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_8|\hat{1}^-_{\beta}|J_0\rangle \langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{B_1} t_{A_9,K_{11}} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{13},J_7,K_{11})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I |\hat{g}|1^K 0^J \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{13}|\hat{1}_{\beta}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{11}|\hat{1}_{\alpha}^+ |K_0\rangle t_{B_2} t_{A_9,K_{11}} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{13},J_7,K_{11})\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I |\hat{g}|1^K 0^J \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle \langle K_{11} |\hat{1}^+_{\alpha}|K_0 \rangle t_{B_3} t_{A_9,K_{11}} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_{13},J_8,K_{11})\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I |\hat{g}|1^K 1^J \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0 \rangle \langle J_8|\hat{1}^-_{\beta}|J_0 \rangle \langle K_{11}|\hat{1}^+_{\alpha}|K_0 \rangle t_{B_2} t_{A_9,K_{11}} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_{13},J_8,K_{11})\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I |\hat{g}|1^K 1^J \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_8|\hat{1}^-_{\beta}|J_0\rangle \langle K_{11}|\hat{1}^+_{\alpha}|K_0\rangle t_{B_3} t_{A_9,K_{11}} t_{I_{13},J_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_{13}, J_7, K_{11})\rangle =$$

$$+\frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^I |\hat{g}|1^K 0^J \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{13} |\hat{1}_{\beta}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{A_9, K_{11}} t_{I_{13}, J_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{13},J_7,K_{11})\rangle = \\ &+ \frac{1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I |\hat{g}|1^K 0^J \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle \langle K_{11} |\hat{1}^+_{\alpha}|K_0 \rangle t_{B_1} t_{A_9,K_{11}} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{9},I_{13},J_{8},K_{11})\rangle = \\ &+ \frac{1}{12}\sum_{I}\sum_{K}\langle 1^{B}1^{I}|\hat{g}|1^{K}1^{J}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{8}|\hat{1}_{\beta}^{-}|J_{0}\rangle\langle K_{11}|\hat{1}_{\alpha}^{+}|K_{0}\rangle t_{A_{9},K_{11}}t_{I_{13},J_{8}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_{13},J_8,K_{11})\rangle = \\ &+ \frac{1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^I |\hat{g}|1^K 1^J \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle \langle K_{11} |\hat{1}^+_{\alpha}|K_0 \rangle t_{B_1} t_{A_9,K_{11}} t_{I_{13},J_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_2, I_7, J_{14}, K_{12})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^I |\hat{g}|0^K 0^J \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{B_2} t_{A_9, K_{12}} t_{I_7, J_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_7,J_{14},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^I |\hat{g}|0^K 0^J \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{B_3} t_{A_9,K_{12}} t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_8,J_{14},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I |\hat{g}|0^K 0^J \rangle \langle B_2 |\hat{0}_\alpha^- |B_{11}\rangle \langle I_8 |\hat{1}_\beta^- |I_0\rangle \langle J_{14} |\hat{0}_\beta^+ |J_0\rangle \langle K_{12} |\hat{0}_\alpha^+ |K_0\rangle t_{B_2} t_{A_9,K_{12}} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_8,J_{14},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I |\hat{g}|0^K 0^J \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{B_3} t_{A_9,K_{12}} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_7,J_{14},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I |\hat{g}|0^K 0^J \rangle \langle B_0 |\hat{1}_\alpha^- |B_{11}\rangle \langle I_7 |\hat{0}_\beta^- |I_0\rangle \langle J_{14} |\hat{0}_\beta^+ |J_0\rangle \langle K_{12} |\hat{0}_\alpha^+ |K_0\rangle t_{A_9,K_{12}} t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_7,J_{14},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|0^K 0^J \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle \langle K_{12} |\hat{0}^+_{\alpha}|K_0 \rangle t_{B_1} t_{A_9,K_{12}} t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_8,J_{14},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I |\hat{g}|0^K 0^J \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle \langle K_{12} |\hat{0}^+_{\alpha}|K_0 \rangle t_{A_9,K_{12}} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_8,J_{14},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^I |\hat{g}|0^K 0^J \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle \langle K_{12} |\hat{0}^+_{\alpha}|K_0 \rangle t_{B_1} t_{A_9,K_{12}} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_7,J_{13},K_{12})\rangle = \\ &+ \frac{-1}{12}\sum_{I}\sum_{J}\sum_{K}\langle 0^B0^I|\hat{g}|0^K1^J\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle\langle K_{12}|\hat{0}_{\alpha}^+|K_0\rangle t_{B_2}t_{A_9,K_{12}}t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_7,J_{13},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{I} \sum_{K} \langle 0^B 0^I |\hat{g}|0^K 1^J \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{B_3} t_{A_9,K_{12}} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_8,J_{13},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I |\hat{g}|0^K 1^J \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_{12} |\hat{0}_{\alpha}^+ |K_0\rangle t_{B_2} t_{A_9,K_{12}} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_8,J_{13},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 0^B 1^I |\hat{g}|0^K 1^J \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_8 |\hat{1}^-_{\beta}|I_0\rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle \langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_3} t_{A_9,K_{12}} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_7,J_{13},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I |\hat{g}|0^K 1^J \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_7 |\hat{0}^-_{\beta}|I_0\rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle \langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,K_{12}} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_7,J_{13},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I |\hat{g}|0^K 1^J \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_7 |\hat{0}^-_{\beta}|I_0\rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle \langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{B_1} t_{A_9,K_{12}} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_8,J_{13},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^I |\hat{g}|0^K 1^J \rangle \langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_8|\hat{1}^-_{\beta}|I_0\rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle \langle K_{12}|\hat{0}^+_{\alpha}|K_0\rangle t_{A_9,K_{12}} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_8,J_{13},K_{12})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 1^I |\hat{g}|0^K 1^J \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_8 |\hat{1}^-_{\beta}|I_0\rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0\rangle \langle K_{12} |\hat{0}^+_{\alpha}|K_0\rangle t_{B_1} t_{A_9,K_{12}} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_7,J_{14},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^I |\hat{g}| 1^K 0^J \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{B_2} t_{A_9,K_{11}} t_{I_7,J_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_3, I_7, J_{14}, K_{11})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^{B} 0^{I} | \hat{g} | 1^{K} 0^{J} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle \langle K_{11} | \hat{1}_{\alpha}^{+} | K_{0} \rangle t_{B_{3}} t_{A_{9}, K_{11}} t_{I_{7}, J_{14}} dA_{12} dA_{12} dA_{13} dA_{14} dA_{14} dA_{14} dA_{15} dA_{$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_8,J_{14},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I |\hat{g}|1^K 0^J \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{B_2} t_{A_9,K_{11}} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_8,J_{14},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I |\hat{g}|1^K 0^J \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{B_3} t_{A_9,K_{11}} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,I_7,J_{14},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|1^K 0^J \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{A_9,K_{11}} t_{I_7,J_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, B_1, I_7, J_{14}, K_{11})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|1^K 0^J \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{B_1} t_{A_9, K_{11}} t_{I_7, J_{14}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_8, J_{14}, K_{11})\rangle =$$

$$+\frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^I |\hat{g}|1^K 0^J \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{A_9, K_{11}} t_{I_8, J_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_8,J_{14},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^I |\hat{g}|1^K 0^J \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle \langle K_{11} |\hat{1}^+_{\alpha}|K_0 \rangle t_{B_1} t_{A_9,K_{11}} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_7,J_{13},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^I |\hat{g}| 1^K 1^J \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{B_2} t_{A_9,K_{11}} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_7,J_{13},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 0^I |\hat{g}| 1^K 1^J \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{B_3} t_{A_9,K_{11}} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_2,I_8,J_{13},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{I} \sum_{K} \langle 0^B 1^I |\hat{g}|1^K 1^J \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{B_2} t_{A_9,K_{11}} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_3,I_8,J_{13},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 0^B 1^I |\hat{g}|1^K 1^J \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{B_3} t_{A_9,K_{11}} t_{I_8,J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_7, J_{13}, K_{11})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 0^I |\hat{g}|1^K 1^J \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{A_9, K_{11}} t_{I_7, J_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_7,J_{13},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_I \sum_J \sum_K \langle 1^B 0^I |\hat{g}|1^K 1^J \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_7 |\hat{0}^-_{\beta}|I_0\rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0\rangle \langle K_{11} |\hat{1}^+_{\alpha}|K_0\rangle t_{B_1} t_{A_9,K_{11}} t_{I_7,J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_9, I_8, J_{13}, K_{11})\rangle =$$

$$+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^I |\hat{g}|1^K 1^J \rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle \langle K_{11} |\hat{1}_{\alpha}^+ |K_0\rangle t_{A_9, K_{11}} t_{I_8, J_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_9,B_1,I_8,J_{13},K_{11})\rangle = \\ &+ \frac{-1}{12} \sum_{I} \sum_{J} \sum_{K} \langle 1^B 1^I |\hat{g}|1^K 1^J \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11}\rangle \langle I_8 |\hat{1}^-_{\beta}|I_0\rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0\rangle \langle K_{11} |\hat{1}^+_{\alpha}|K_0\rangle t_{B_1} t_{A_9,K_{11}} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_2,I_{12},J_9)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_0|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_9|\hat{0}_{\alpha}^- |J_0\rangle t_{B_2} t_{I_{12},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^B |\hat{g}|0^J 0^I \rangle \langle A_0|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_9|\hat{0}_{\alpha}^- |J_0\rangle t_{B_2} t_{I_{12},J_9} \end{split}$$

$$\begin{split} & \langle (A_9,B_{11})|\hat{H}|(B_3,I_{12},J_9)\rangle = \\ & + \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_0|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_9|\hat{0}_{\alpha}^- |J_0\rangle t_{B_3} t_{I_{12},J_9} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^B |\hat{g}|0^J 0^I \rangle \langle A_0|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^+ |I_0\rangle \langle J_9|\hat{0}_{\alpha}^- |J_0\rangle t_{B_3} t_{I_{12},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_2,I_{12},J_9)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0 \rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0 \rangle t_{A_1,B_2} t_{I_{12},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^B |\hat{g}|0^J 0^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0 \rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0 \rangle t_{A_1,B_2} t_{I_{12},J_9} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0 \rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0 \rangle t_{A_1} t_{B_2} t_{I_{12},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^B |\hat{g}|0^J 0^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0 \rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0 \rangle t_{A_1} t_{B_2} t_{I_{12},J_9} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{3},I_{12},J_{9})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},B_{3}}t_{I_{12},J_{9}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|0^{J}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},B_{3}}t_{I_{12},J_{9}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{3}}t_{I_{12},J_{9}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|0^{J}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{3}}t_{I_{12},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_2,I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{I} \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{B_2} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_3,I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{B_3} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_2,I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle t_{A_1,B_2} t_{I_{14},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^+ |I_0\rangle \langle J_7 |\hat{0}_{\beta}^- |J_0\rangle t_{A_1} t_{B_2} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_3,I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_1,B_3} t_{I_{14},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_1} t_{B_3} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{2},I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{I}|\hat{g}|0^{B}1^{J}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{I_{12},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{B}|\hat{g}|1^{J}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{3},I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{I}|\hat{g}|0^{B}1^{J}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{3}}t_{I_{12},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{B}|\hat{g}|1^{J}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{3}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{2},I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},B_{2}}t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|1^{J}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},B_{2}}t_{I_{12},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{2}}t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|1^{J}0^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{2}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_3,I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^B1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,B_3}t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^B|\hat{g}|1^J0^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,B_3}t_{I_{12},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^B1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_3}t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^B|\hat{g}|1^J0^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_3}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_2,I_{14},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{B_2} t_{I_{14},J_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_3, I_{14}, J_8)\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{B_3} t_{I_{14}, J_8}$$

$$\begin{split} & \langle (A_9,B_{11})|\hat{H}|(A_1,B_2,I_{14},J_8) \rangle = \\ & + \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_1,B_2} t_{I_{14},J_8} \\ & + \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_1} t_{B_2} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_3,I_{14},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_1,B_3} t_{I_{14},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_1} t_{B_3} t_{I_{14},J_8} \end{split}$$

$$\langle (A_9, B_{11}) | \hat{H} | (I_{12}, J_9) \rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I | \hat{g} | 1^B 0^J \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^+ | I_0 \rangle \langle J_9 | \hat{0}_{\alpha}^- | J_0 \rangle t_{I_{12}, J_9}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A} 1^{B} | \hat{g} | 0^{J} 0^{I} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{9} | \hat{0}_{\alpha}^{-} | J_{0} \rangle t_{I_{12},J_{9}}$$

$$\begin{split} & \langle (A_9,B_{11})|\hat{H}|(B_1,I_{12},J_9)\rangle = \\ & + \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{B_1} t_{I_{12},J_9} \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^B |\hat{g}| 0^J 0^I \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{B_1} t_{I_{12},J_9} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},I_{12},J_{9})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{I}|\hat{g}|1^{B}0^{J}\rangle \langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{I_{12},J_{9}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A}1^{B}|\hat{g}|0^{J}0^{I}\rangle \langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{I_{12},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_{12},J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^B0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^B|\hat{g}|0^J0^I\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^B0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^B|\hat{g}|0^J0^I\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_0 |\hat{1}_{\alpha}^-|B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^+|I_0\rangle \langle J_7 |\hat{0}_{\beta}^-|J_0\rangle t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_1,I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{B_1} t_{I_{14},J_7} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, I_{14}, J_7)\rangle =$$

$$+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^A 0^I | \hat{g} | 1^B 0^J \rangle \langle A_1 | \hat{0}^+_\alpha | A_9 \rangle \langle B_0 | \hat{1}^-_\alpha | B_{11} \rangle \langle I_{14} | \hat{0}^+_\beta | I_0 \rangle \langle J_7 | \hat{0}^-_\beta | J_0 \rangle t_{A_1} t_{I_{14}, J_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_1,B_1} t_{I_{14},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_1} t_{B_1} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{B}|\hat{g}|1^{J}0^{I}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{1},I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{I_{12},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A}1^{B}|\hat{g}|1^{J}0^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{I_{12},J_{10}} \end{split}$$

$$\langle (A_{9}, B_{11})|\hat{H}|(A_{1}, I_{12}, J_{10})\rangle =$$

$$+\frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A} 0^{I} |\hat{g}| 1^{B} 1^{J} \rangle \langle A_{1} |\hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{0} |\hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} |\hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} |\hat{1}_{\alpha}^{-} | J_{0} \rangle t_{A_{1}} t_{I_{12}, J_{10}}$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A} 1^{B} |\hat{g}| 1^{J} 0^{I} \rangle \langle A_{1} |\hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{0} |\hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} |\hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} |\hat{1}_{\alpha}^{-} | J_{0} \rangle t_{A_{1}} t_{I_{12}, J_{10}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^B1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^B|\hat{g}|1^J0^I\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_1,B_1}t_{I_{12},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^B1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A1^B|\hat{g}|1^J0^I\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(I_{14},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_0 |\hat{1}_{\alpha}^-|B_{11}\rangle \langle I_{14} |\hat{0}_{\beta}^+|I_0\rangle \langle J_8 |\hat{1}_{\beta}^-|J_0\rangle t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_1,I_{14},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 0^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_0 |\hat{0}^+_\alpha |A_9\rangle \langle B_1 |\hat{1}^-_\alpha |B_{11}\rangle \langle I_{14} |\hat{0}^+_\beta |I_0\rangle \langle J_8 |\hat{1}^-_\beta |J_0\rangle t_{B_1} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,I_{14},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 0^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}| A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}| B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}| I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}| J_0 \rangle t_{A_1} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_{14},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_1,B_1} t_{I_{14},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_1} t_{B_1} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{2},I_{11},J_{9})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A} 1^{I} |\hat{g}|0^{B} 0^{J} \rangle \langle A_{0}|\hat{0}_{\alpha}^{+} |A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-} |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+} |I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-} |J_{0}\rangle t_{B_{2}} t_{I_{11},J_{9}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A} 0^{B} |\hat{g}|0^{J} 1^{I} \rangle \langle A_{0}|\hat{0}_{\alpha}^{+} |A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-} |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+} |I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-} |J_{0}\rangle t_{B_{2}} t_{I_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{3},I_{11},J_{9})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A}1^{I}|\hat{g}|0^{B}0^{J}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{3}}t_{I_{11},J_{9}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{B}|\hat{g}|0^{J}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{B_{3}}t_{I_{11},J_{9}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_2, I_{11}, J_9)\rangle =$$

$$\begin{split} &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},B_{2}}t_{I_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|0^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},B_{2}}t_{I_{11},J_{9}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{2}}t_{I_{11},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|0^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{2}}t_{I_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_3,I_{11},J_9)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{11} |\hat{1}_{\alpha}^+ |I_0 \rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0 \rangle t_{A_1,B_3} t_{I_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^B |\hat{g}|0^J 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{11} |\hat{1}_{\alpha}^+ |I_0 \rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0 \rangle t_{A_1,B_3} t_{I_{11},J_9} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{11} |\hat{1}_{\alpha}^+ |I_0 \rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0 \rangle t_{A_1} t_{B_3} t_{I_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^B |\hat{g}|0^J 1^I \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{11} |\hat{1}_{\alpha}^+ |I_0 \rangle \langle J_9 |\hat{0}_{\alpha}^- |J_0 \rangle t_{A_1} t_{B_3} t_{I_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_2,I_{13},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 0^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{B_2} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_3,I_{13},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 0^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_0 |\hat{0}^+_\alpha |A_9\rangle \langle B_3 |\hat{0}^-_\alpha |B_{11}\rangle \langle I_{13} |\hat{1}^+_\beta |I_0\rangle \langle J_7 |\hat{0}^-_\beta |J_0\rangle t_{B_3} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{2},I_{13},J_{7})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{1},B_{2}}t_{I_{13},J_{7}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{2}}t_{I_{13},J_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_3,I_{13},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_1,B_3} t_{I_{13},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_1} t_{B_3} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{2},I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A}1^{I}|\hat{g}|0^{B}1^{J}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{I_{11},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{B}|\hat{g}|1^{J}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{2}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{3},I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A} 1^{I} |\hat{g}|0^{B} 1^{J} \rangle \langle A_{0}|\hat{0}_{\alpha}^{+} |A_{9}\rangle \langle B_{3}|\hat{0}_{\alpha}^{-} |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+} |I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-} |J_{0}\rangle t_{B_{3}} t_{I_{11},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A} 0^{B} |\hat{g}|1^{J} 1^{I} \rangle \langle A_{0}|\hat{0}_{\alpha}^{+} |A_{9}\rangle \langle B_{3}|\hat{0}_{\alpha}^{-} |B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+} |I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-} |J_{0}\rangle t_{B_{3}} t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{2},I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},B_{2}}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|1^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},B_{2}}t_{I_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{2}}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|1^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{2}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_3,I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,B_3}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1,B_3}t_{I_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_3}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^B|\hat{g}|1^J 1^I\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_1}t_{B_3}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_2,I_{13},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{I} \langle 0^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{B_2} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_3,I_{13},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 0^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_0 |\hat{0}^+_\alpha |A_9\rangle \langle B_3 |\hat{0}^-_\alpha |B_{11}\rangle \langle I_{13} |\hat{1}^+_\beta |I_0\rangle \langle J_8 |\hat{1}^-_\beta |J_0\rangle t_{B_3} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_2,I_{13},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_1,B_2} t_{I_{13},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_1} t_{B_2} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_3,I_{13},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_1,B_3} t_{I_{13},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_1} t_{B_3} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(I_{11},J_{9})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A}1^{I}|\hat{g}|1^{B}0^{J}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{I_{11},J_{9}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A}1^{B}|\hat{g}|0^{J}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{I_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_1,I_{11},J_9)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 0^J \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{B_1} t_{I_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^B |\hat{g}| 0^J 1^I \rangle \langle A_0 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{B_1} t_{I_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},I_{11},J_{9})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{I_{11},J_{9}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{B}|\hat{g}|0^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{I_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_{11},J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_1,B_1}t_{I_{11},J_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|0^J 1^I\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_1}t_{B_1}t_{I_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(I_{13},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 0^A 1^I |\hat{g}| 1^B 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_0 |\hat{1}_{\alpha}^-|B_{11}\rangle \langle I_{13} |\hat{1}_{\beta}^+|I_0\rangle \langle J_7 |\hat{0}_{\beta}^-|J_0\rangle t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_1,I_{13},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 0^A 1^I |\hat{g}| 1^B 0^J \rangle \langle A_0 |\hat{0}^+_\alpha|A_9 \rangle \langle B_1 |\hat{1}^-_\alpha|B_{11} \rangle \langle I_{13} |\hat{1}^+_\beta|I_0 \rangle \langle J_7 |\hat{0}^-_\beta|J_0 \rangle t_{B_1} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,I_{13},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 0^J \rangle \langle A_1 |\hat{0}^+_{\alpha}| A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}| B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}| I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}| J_0 \rangle t_{A_1} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{1},I_{13},J_{7})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{1},B_{1}}t_{I_{13},J_{7}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{1}}t_{I_{13},J_{7}} \end{split}$$

$$\langle (A_{9}, B_{11})|\hat{H}|(I_{11}, J_{10})\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A} 1^{I} |\hat{g}| 1^{B} 1^{J} \rangle \langle A_{0} |\hat{0}_{\alpha}^{+} |A_{9} \rangle \langle B_{0} |\hat{1}_{\alpha}^{-} |B_{11} \rangle \langle I_{11} |\hat{1}_{\alpha}^{+} |I_{0} \rangle \langle J_{10} |\hat{1}_{\alpha}^{-} |J_{0} \rangle t_{I_{11},J_{10}}$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A} 1^{B} |\hat{g}| 1^{J} 1^{I} \rangle \langle A_{0} |\hat{0}_{\alpha}^{+} |A_{9} \rangle \langle B_{0} |\hat{1}_{\alpha}^{-} |B_{11} \rangle \langle I_{11} |\hat{1}_{\alpha}^{+} |I_{0} \rangle \langle J_{10} |\hat{1}_{\alpha}^{-} |J_{0} \rangle t_{I_{11},J_{10}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{1},I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{I_{11},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A}1^{B}|\hat{g}|1^{J}1^{I}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{B_{1}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha}|J_0 \rangle t_{A_1} t_{I_{11},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^B |\hat{g}| 1^J 1^I \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha}|J_0 \rangle t_{A_1} t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{1},I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},B_{1}}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{B}|\hat{g}|1^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1},B_{1}}t_{I_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{1}}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{B}|\hat{g}|1^{J}1^{I}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{1}}t_{B_{1}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(I_{13},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_0 |\hat{0}^+_{\alpha}| A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}| B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}| I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}| J_0 \rangle t_{I_{13},J_8} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_1, I_{13}, J_8)\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- | B_{11} \rangle \langle I_{13} |\hat{1}_{\beta}^+ | I_0 \rangle \langle J_8 |\hat{1}_{\beta}^- | J_0 \rangle t_{B_1} t_{I_{13}, J_8}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, I_{13}, J_8)\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}| A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}| B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}| I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}| J_0 \rangle t_{A_1} t_{I_{13}, J_8}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_{13},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_1,B_1} t_{I_{13},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_1} t_{B_1} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_{12},J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_2,B_2}t_{I_{12},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^J0^I\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_2,B_2}t_{I_{12},J_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_2}t_{I_{12},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^J0^I\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_2}t_{I_{12},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_{12},J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_2,B_3}t_{I_{12},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^J0^I\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_2,B_3}t_{I_{12},J_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_3}t_{I_{12},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^J0^I\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_3}t_{I_{12},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_{12},J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,B_2}t_{I_{12},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^J0^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,B_2}t_{I_{12},J_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_2}t_{I_{12},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^J0^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_2}t_{I_{12},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_{12},J_9)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_3 |\hat{1}^+_\alpha |A_9\rangle \langle B_3 |\hat{0}^-_\alpha |B_{11}\rangle \langle I_{12} |\hat{0}^+_\alpha |I_0\rangle \langle J_9 |\hat{0}^-_\alpha |J_0\rangle t_{A_3,B_3} t_{I_{12},J_9} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|0^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},B_{3}}t_{I_{12},J_{9}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{12},J_{9}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|0^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{12},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_5,B_4} t_{I_{14},J_7} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|0^J 0^I \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_5,B_4} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_2,B_2} t_{I_{14},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_2} t_{B_2} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_2,B_3} t_{I_{14},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_2} t_{B_3} t_{I_{14},J_7} \end{split}$$

$$\begin{split} & \langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_{14},J_7) \rangle = \\ & + \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2|\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_7|\hat{0}^-_{\beta}|J_0 \rangle t_{A_3,B_2} t_{I_{14},J_7} \\ & + \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2|\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0 \rangle \langle J_7|\hat{0}^-_{\beta}|J_0 \rangle t_{A_3} t_{B_2} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_3,B_3} t_{I_{14},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_3} t_{B_3} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2,B_2}t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^J0^I\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2,B_2}t_{I_{12},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2}t_{B_2}t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^J0^I\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2}t_{B_2}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha}|J_0 \rangle t_{A_2,B_3} t_{I_{12},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^J 0^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha}|J_0 \rangle t_{A_2,B_3} t_{I_{12},J_{10}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha}|J_0 \rangle t_{A_2} t_{B_3} t_{I_{12},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^J 0^I \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha}|J_0 \rangle t_{A_2} t_{B_3} t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{2},I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},B_{2}}t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|1^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},B_{2}}t_{I_{12},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|1^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{3},I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},B_{3}}t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|1^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},B_{3}}t_{I_{12},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|1^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_{14},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_5|\hat{1}^+_{\beta}|A_9\rangle \langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_5,B_4} t_{I_{14},J_8} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^J 0^I \rangle \langle A_5|\hat{1}^+_{\beta}|A_9\rangle \langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_5,B_4} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_{14},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_2,B_2} t_{I_{14},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_2} t_{B_2} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_{14},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_2,B_3} t_{I_{14},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_2} t_{B_3} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_{14},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_3,B_2} t_{I_{14},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle \langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_3} t_{B_2} t_{I_{14},J_8} \end{split}$$

$$\begin{split} & \langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_{14},J_8) \rangle = \\ & + \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_3,B_3} t_{I_{14},J_8} \\ & + \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_3} t_{B_3} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},I_{12},J_{9})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{I_{12},J_{9}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|0^{J}0^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{I_{12},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1,I_{12},J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_2,B_1}t_{I_{12},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^B|\hat{g}|0^J0^I\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_2,B_1}t_{I_{12},J_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^B|\hat{g}|0^J0^I\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_9} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},I_{12},J_{9})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{I_{12},J_{9}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|0^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{I_{12},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{1},I_{12},J_{9})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},B_{1}}t_{I_{12},J_{9}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|0^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},B_{1}}t_{I_{12},J_{9}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{1}}t_{I_{12},J_{9}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|0^{J}0^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{1}}t_{I_{12},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_2} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1,I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_2,B_1} t_{I_{14},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_2} t_{B_1} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_3} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_1,I_{14},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_3,B_1} t_{I_{14},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_3} t_{B_1} t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{I_{12},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{B}|\hat{g}|1^{J}0^{I}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1,I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2,B_1}t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^B|\hat{g}|1^J0^I\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2,B_1}t_{I_{12},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^B|\hat{g}|1^J0^I\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{12}|\hat{0}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2}t_{B_1}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0\rangle t_{A_3} t_{I_{12},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^B |\hat{g}| 1^J 0^I \rangle \langle A_3 |\hat{1}_{\alpha}^+ |A_9\rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{12} |\hat{0}_{\alpha}^+ |I_0\rangle \langle J_{10} |\hat{1}_{\alpha}^- |J_0\rangle t_{A_3} t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{1},I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle \langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},B_{1}}t_{I_{12},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{B}|\hat{g}|1^{J}0^{I}\rangle \langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{12}|\hat{0}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},B_{1}}t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A} 0^{I} | \hat{g} | 1^{B} 1^{J} \rangle \langle A_{3} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle t_{A_{3}} t_{B_{1}} t_{I_{12},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A} 1^{B} | \hat{g} | 1^{J} 0^{I} \rangle \langle A_{3} | \hat{1}_{\alpha}^{+} | A_{9} \rangle \langle B_{1} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{12} | \hat{0}_{\alpha}^{+} | I_{0} \rangle \langle J_{10} | \hat{1}_{\alpha}^{-} | J_{0} \rangle t_{A_{3}} t_{B_{1}} t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,I_{14},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_2} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1,I_{14},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_2,B_1} t_{I_{14},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_2} t_{B_1} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_{14},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_3} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_1,I_{14},J_8)\rangle = \\ &+ \tfrac{-1}{4} \sum_I \sum_J \langle 1^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_3 |\hat{1}^+_\alpha |A_9\rangle \langle B_1 |\hat{1}^-_\alpha |B_{11}\rangle \langle I_{14} |\hat{0}^+_\beta |I_0\rangle \langle J_8 |\hat{1}^-_\beta |J_0\rangle t_{A_3,B_1} t_{I_{14},J_8} \\ &+ \tfrac{-1}{4} \sum_I \sum_J \langle 1^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_3 |\hat{1}^+_\alpha |A_9\rangle \langle B_1 |\hat{1}^-_\alpha |B_{11}\rangle \langle I_{14} |\hat{0}^+_\beta |I_0\rangle \langle J_8 |\hat{1}^-_\beta |J_0\rangle t_{A_3} t_{B_1} t_{I_{14},J_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{2},I_{11},J_{9})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},B_{2}}t_{I_{11},J_{9}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|0^{J}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},B_{2}}t_{I_{11},J_{9}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{2}}t_{I_{11},J_{9}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|0^{J}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{2}}t_{I_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_{11},J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_2,B_3}t_{I_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^J1^I\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_2,B_3}t_{I_{11},J_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_2}t_{B_3}t_{I_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^J1^I\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_9|\hat{0}_{\alpha}^-|J_0\rangle t_{A_2}t_{B_3}t_{I_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_{11},J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,B_2}t_{I_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^J1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,B_2}t_{I_{11},J_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_2}t_{I_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^J1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_2}t_{I_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_{11},J_9)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_3,B_3} t_{I_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|0^J 1^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_3,B_3} t_{I_{11},J_9} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_3} t_{B_3} t_{I_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|0^J 1^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_3} t_{B_3} t_{I_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{5},B_{4},I_{13},J_{7})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{5}|\hat{1}^{+}_{\beta}|A_{9}\rangle\langle B_{4}|\hat{0}^{-}_{\beta}|B_{11}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle t_{A_{5},B_{4}}t_{I_{13},J_{7}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|0^{J}1^{I}\rangle\langle A_{5}|\hat{1}^{+}_{\beta}|A_{9}\rangle\langle B_{4}|\hat{0}^{-}_{\beta}|B_{11}\rangle\langle I_{13}|\hat{1}^{+}_{\beta}|I_{0}\rangle\langle J_{7}|\hat{0}^{-}_{\beta}|J_{0}\rangle t_{A_{5},B_{4}}t_{I_{13},J_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_{13},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_2,B_2} t_{I_{13},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_2} t_{B_2} t_{I_{13},J_7} \end{split}$$

$$\begin{split} & \langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_{13},J_7) \rangle = \\ & + \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_2,B_3} t_{I_{13},J_7} \\ & + \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_2} t_{B_3} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_{13},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_3,B_2} t_{I_{13},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_3} t_{B_2} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_{13},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_3,B_3} t_{I_{13},J_7} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_3} t_{B_3} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2,B_2}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^J1^I\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2,B_2}t_{I_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2}t_{B_2}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^J1^I\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2}t_{B_2}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2,B_3}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^J1^I\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2,B_3}t_{I_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2}t_{B_3}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^J1^I\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_2}t_{B_3}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,B_2}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^J1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_3,B_2}t_{I_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_2}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^J1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_{10}|\hat{1}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_2}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_3,B_3}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^J1^I\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_3,B_3}t_{I_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_3}t_{B_3}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^J1^I\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^+|I_0\rangle\langle J_{10}|\hat{1}_{\alpha}^-|J_0\rangle t_{A_3}t_{B_3}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_{13},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_5,B_4} t_{I_{13},J_8} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^J 1^I \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_5,B_4} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_{13},J_8)\rangle = \\ &+ \tfrac{-1}{4} \sum_I \sum_J \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_\alpha |A_9 \rangle \langle B_2 |\hat{0}^-_\alpha |B_{11} \rangle \langle I_{13} |\hat{1}^+_\beta |I_0 \rangle \langle J_8 |\hat{1}^-_\beta |J_0 \rangle t_{A_2,B_2} t_{I_{13},J_8} \\ &+ \tfrac{-1}{4} \sum_I \sum_J \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_\alpha |A_9 \rangle \langle B_2 |\hat{0}^-_\alpha |B_{11} \rangle \langle I_{13} |\hat{1}^+_\beta |I_0 \rangle \langle J_8 |\hat{1}^-_\beta |J_0 \rangle t_{A_2} t_{B_2} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_{13},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_2,B_3} t_{I_{13},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_2} t_{B_3} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_{13},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_3,B_2} t_{I_{13},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_3} t_{B_2} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_{13},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_3,B_3} t_{I_{13},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle \langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_3} t_{B_3} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},I_{11},J_{9})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{I_{11},J_{9}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|0^{J}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{9}|\hat{0}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{I_{11},J_{9}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1,I_{11},J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_2,B_1}t_{I_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^B|\hat{g}|0^J1^I\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_2,B_1}t_{I_{11},J_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_1}t_{I_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^B|\hat{g}|0^J1^I\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_2}t_{B_1}t_{I_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_{11},J_9)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 1^B 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_3} t_{I_{11},J_9} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^B |\hat{g}| 0^J 1^I \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}|J_0 \rangle t_{A_3} t_{I_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_1,I_{11},J_9)\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,B_1}t_{I_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^B|\hat{g}|0^J1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3,B_1}t_{I_{11},J_9} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_1}t_{I_{11},J_9} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^B|\hat{g}|0^J1^I\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_1|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{11}|\hat{1}^+_{\alpha}|I_0\rangle\langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_3}t_{B_1}t_{I_{11},J_9} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, I_{13}, J_7)\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 1^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha} | A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha} | B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta} | I_0 \rangle \langle J_7 |\hat{0}^-_{\beta} | J_0 \rangle t_{A_2} t_{I_{13}, J_7}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{1},I_{13},J_{7})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{2},B_{1}}t_{I_{13},J_{7}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{13}|\hat{1}_{\beta}^{+}|I_{0}\rangle\langle J_{7}|\hat{0}_{\beta}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{1}}t_{I_{13},J_{7}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_{13},J_7)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 1^B 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_3} t_{I_{13},J_7} \end{split}$$

$$\begin{split} & \langle (A_9,B_{11})|\hat{H}|(A_3,B_1,I_{13},J_7) \rangle = \\ & + \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 1^B 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_3,B_1} t_{I_{13},J_7} \\ & + \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 1^B 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_7 |\hat{0}^-_{\beta}|J_0 \rangle t_{A_3} t_{B_1} t_{I_{13},J_7} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{I_{11},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{B}|\hat{g}|1^{J}1^{I}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{1},I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},B_{1}}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|1^{J}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{2},B_{1}}t_{I_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{1}}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|1^{J}1^{I}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{2}}t_{B_{1}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle \langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{I_{11},J_{10}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{B}|\hat{g}|1^{J}1^{I}\rangle \langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle \langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{1},I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},B_{1}}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|1^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3},B_{1}}t_{I_{11},J_{10}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{1}}t_{I_{11},J_{10}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|1^{J}1^{I}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{11}|\hat{1}_{\alpha}^{+}|I_{0}\rangle\langle J_{10}|\hat{1}_{\alpha}^{-}|J_{0}\rangle t_{A_{3}}t_{B_{1}}t_{I_{11},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,I_{13},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_2} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1,I_{13},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_2,B_1} t_{I_{13},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_2} t_{B_1} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_{13},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|1^B 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_3} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_1,I_{13},J_8)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_3,B_1} t_{I_{13},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_{13} |\hat{1}^+_{\beta}|I_0 \rangle \langle J_8 |\hat{1}^-_{\beta}|J_0 \rangle t_{A_3} t_{B_1} t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{2},I_{9},J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{B_{2}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|0^{I}0^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{B_{2}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_3,I_9,J_{12})\rangle = \\ &+ \tfrac{1}{4} \sum_I \sum_J \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_0|\hat{0}_\alpha^+ |A_9\rangle \langle B_3|\hat{0}_\alpha^- |B_{11}\rangle \langle I_9|\hat{0}_\alpha^- |I_0\rangle \langle J_{12}|\hat{0}_\alpha^+ |J_0\rangle t_{B_3} t_{I_9,J_{12}} \\ &+ \tfrac{-1}{4} \sum_I \sum_J \langle 0^A 0^B |\hat{g}|0^I 0^J \rangle \langle A_0|\hat{0}_\alpha^+ |A_9\rangle \langle B_3|\hat{0}_\alpha^- |B_{11}\rangle \langle I_9|\hat{0}_\alpha^- |I_0\rangle \langle J_{12}|\hat{0}_\alpha^+ |J_0\rangle t_{B_3} t_{I_9,J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_2,I_9,J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^B0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_1,B_2}t_{I_9,J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^B|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_1,B_2}t_{I_9,J_{12}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^B0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^B|\hat{g}|0^I0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{3},I_{9},J_{12})\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{1},B_{3}}t_{I_{9},J_{12}} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|0^{I}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{1},B_{3}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}}t_{B_{3}}t_{I_{9},J_{12}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|0^{I}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}}t_{B_{3}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_2,I_7,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle t_{B_2} t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_3,I_7,J_{14})\rangle = \\ &+ \tfrac{1}{4} \sum_I \sum_J \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_0 |\hat{0}^+_\alpha |A_9\rangle \langle B_3 |\hat{0}^-_\alpha |B_{11}\rangle \langle I_7 |\hat{0}^-_\beta |I_0\rangle \langle J_{14} |\hat{0}^+_\beta |J_0\rangle t_{B_3} t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_2,I_7,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7|\hat{0}_{\beta}^- |I_0\rangle \langle J_{14}|\hat{0}_{\beta}^+ |J_0\rangle t_{A_1,B_2} t_{I_7,J_{14}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7|\hat{0}_{\beta}^- |I_0\rangle \langle J_{14}|\hat{0}_{\beta}^+ |J_0\rangle t_{A_1} t_{B_2} t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_3,I_7,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7|\hat{0}_{\beta}^- |I_0\rangle \langle J_{14}|\hat{0}_{\beta}^+ |J_0\rangle t_{A_1,B_3} t_{I_7,J_{14}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7|\hat{0}_{\beta}^- |I_0\rangle \langle J_{14}|\hat{0}_{\beta}^+ |J_0\rangle t_{A_1} t_{B_3} t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{2},I_{10},J_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A} 1^{I} |\hat{g}|0^{B} 0^{J} \rangle \langle A_{0}|\hat{0}_{\alpha}^{+} |A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-} |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-} |I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+} |J_{0}\rangle t_{B_{2}} t_{I_{10},J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A} 0^{B} |\hat{g}|1^{I} 0^{J} \rangle \langle A_{0}|\hat{0}_{\alpha}^{+} |A_{9}\rangle \langle B_{2}|\hat{0}_{\alpha}^{-} |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-} |I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+} |J_{0}\rangle t_{B_{2}} t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_3,I_{10},J_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^-|B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^-|I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+|J_0 \rangle t_{B_3} t_{I_{10},J_{12}} \end{split}$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A} 0^{B} | \hat{g} | 1^{I} 0^{J} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{3} | \hat{0}_{\alpha}^{-} | B_{11} \rangle \langle I_{10} | \hat{1}_{\alpha}^{-} | I_{0} \rangle \langle J_{12} | \hat{0}_{\alpha}^{+} | J_{0} \rangle t_{B_{3}} t_{I_{10}, J_{12}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_2,I_{10},J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_1,B_2}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_1,B_2}t_{I_{10},J_{12}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_1}t_{B_2}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 0^B|\hat{g}|1^I 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_1}t_{B_2}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{3},I_{10},J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{1},B_{3}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|1^{I}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{1},B_{3}}t_{I_{10},J_{12}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}}t_{B_{3}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|1^{I}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}}t_{B_{3}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_2,I_8,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle t_{B_2} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_3,I_8,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{I} \langle 0^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_3 |\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^-|I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+|J_0\rangle t_{B_3} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_2,I_8,J_{14})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1,B_2}t_{I_8,J_{14}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_2}t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_3,I_8,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_8 |\hat{1}_{\beta}^- |I_0 \rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0 \rangle t_{A_1,B_3} t_{I_8,J_{14}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_8 |\hat{1}_{\beta}^- |I_0 \rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0 \rangle t_{A_1} t_{B_3} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} & \langle (A_9,B_{11})|\hat{H}|(I_9,J_{12})\rangle = \\ & + \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_0 |\hat{1}_{\alpha}^-|B_{11}\rangle \langle I_9 |\hat{0}_{\alpha}^-|I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+|J_0\rangle t_{I_9,J_{12}} \\ & + \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^B |\hat{g}| 0^I 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_0 |\hat{1}_{\alpha}^-|B_{11}\rangle \langle I_9 |\hat{0}_{\alpha}^-|I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+|J_0\rangle t_{I_9,J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_1,I_9,J_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^-|B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^-|I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+|J_0 \rangle t_{B_1} t_{I_9,J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^B |\hat{g}| 0^I 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^-|B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^-|I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+|J_0 \rangle t_{B_1} t_{I_9,J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},I_{9},J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{B}|\hat{g}|0^{I}0^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_9,J_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0 \rangle t_{A_1,B_1} t_{I_9,J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^B |\hat{g}| 0^I 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0 \rangle t_{A_1,B_1} t_{I_9,J_{12}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0 \rangle t_{A_1} t_{B_1} t_{I_9,J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^B |\hat{g}| 0^I 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0 \rangle t_{A_1} t_{B_1} t_{I_9,J_{12}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(I_7, J_{14})\rangle =$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A} 0^{I} | \hat{g} | 1^{B} 0^{J} \rangle \langle A_{0} | \hat{0}_{\alpha}^{+} | A_{9} \rangle \langle B_{0} | \hat{1}_{\alpha}^{-} | B_{11} \rangle \langle I_{7} | \hat{0}_{\beta}^{-} | I_{0} \rangle \langle J_{14} | \hat{0}_{\beta}^{+} | J_{0} \rangle t_{I_{7},J_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_1,I_7,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle t_{B_1} t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,I_7,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_0 |\hat{1}_{\alpha}^-|B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^-|I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+|J_0\rangle t_{A_1} t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_7,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle t_{A_1,B_1} t_{I_7,J_{14}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_1 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle t_{A_1} t_{B_1} t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(I_{10},J_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A}1^{I}|\hat{g}|1^{B}0^{J}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{I_{10},J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A}1^{B}|\hat{g}|1^{I}0^{J}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_1,I_{10},J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{B_1}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_0|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{B_1}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},I_{10},J_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A} 1^{I}|\hat{g}|1^{B} 0^{J}\rangle \langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}} t_{I_{10},J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A} 1^{B}|\hat{g}|1^{I} 0^{J}\rangle \langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}} t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_{10},J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{12}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|1^I 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(I_8,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 0^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle t_{I_8,J_{14}} \end{split}$$

$$\langle (A_9, B_{11}) | \hat{H} | (B_1, I_8, J_{14}) \rangle =$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I | \hat{g} | 1^B 0^J \rangle \langle A_0 | \hat{0}_{\alpha}^+ | A_9 \rangle \langle B_1 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_8 | \hat{1}_{\beta}^- | I_0 \rangle \langle J_{14} | \hat{0}_{\beta}^+ | J_0 \rangle t_{B_1} t_{I_8, J_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,I_8,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 0^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{14} |\hat{0}_{\beta}^+ |J_0\rangle t_{A_1} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_8,J_{14})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1,B_1}t_{I_8,J_{14}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 0^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{2},I_{9},J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{2}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|0^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{2}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{3},I_{9},J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{3}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|0^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{3}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_2,I_9,J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^B1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_1,B_2}t_{I_9,J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^B|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_1,B_2}t_{I_9,J_{11}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^B1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A0^B|\hat{g}|0^I1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_1}t_{B_2}t_{I_9,J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_3,I_9,J_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_1,B_3} t_{I_9,J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^B |\hat{g}|0^I 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_1,B_3} t_{I_9,J_{11}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_1} t_{B_3} t_{I_9,J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^B |\hat{g}|0^I 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_1} t_{B_3} t_{I_9,J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_2,I_7,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_2 |\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^-|I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+|J_0\rangle t_{B_2} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_3,I_7,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{I} \langle 0^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_3 |\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^-|I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+|J_0\rangle t_{B_3} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_2,I_7,J_{13})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^B1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle t_{A_1,B_2}t_{I_7,J_{13}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|0^B1^J\rangle\langle A_1|\hat{0}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle t_{A_1}t_{B_2}t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_3,I_7,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7|\hat{0}_{\beta}^- |I_0\rangle \langle J_{13}|\hat{1}_{\beta}^+ |J_0\rangle t_{A_1,B_3} t_{I_7,J_{13}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_7|\hat{0}_{\beta}^- |I_0\rangle \langle J_{13}|\hat{1}_{\beta}^+ |J_0\rangle t_{A_1} t_{B_3} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_2,I_{10},J_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^+ |J_0\rangle t_{B_2} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^B |\hat{g}|1^I 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^+ |J_0\rangle t_{B_2} t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_3,I_{10},J_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0\rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0\rangle t_{B_3} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^B |\hat{g}|1^I 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0\rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0\rangle t_{B_3} t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_2,I_{10},J_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^+ |J_0\rangle t_{A_1,B_2} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^B |\hat{g}|1^I 1^J \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^+ |J_0\rangle t_{A_1,B_2} t_{I_{10},J_{11}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^+ |J_0\rangle t_{A_1} t_{B_2} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^B |\hat{g}|1^I 1^J \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^+ |J_0\rangle t_{A_1} t_{B_2} t_{I_{10},J_{11}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_3, I_{10}, J_{11})\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|0^B 1^J\rangle \langle A_1|\hat{0}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_1, B_3}t_{I_{10}, J_{11}}$$

$$\begin{split} &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|1^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{1},B_{3}}t_{I_{10},J_{11}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}}t_{B_{3}}t_{I_{10},J_{11}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{B}|\hat{g}|1^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}}t_{B_{3}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_2,I_8,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle t_{B_2} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_3,I_8,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_3 |\hat{0}_{\alpha}^-|B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^-|I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+|J_0\rangle t_{B_3} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{2},I_{8},J_{13})\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{1},B_{2}}t_{I_{8},J_{13}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{1}}t_{B_{2}}t_{I_{8},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_3,I_8,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8|\hat{1}_{\beta}^- |I_0\rangle \langle J_{13}|\hat{1}_{\beta}^+ |J_0\rangle t_{A_1,B_3} t_{I_8,J_{13}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_1|\hat{0}_{\alpha}^+ |A_9\rangle \langle B_3|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_8|\hat{1}_{\beta}^- |I_0\rangle \langle J_{13}|\hat{1}_{\beta}^+ |J_0\rangle t_{A_1} t_{B_3} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(I_{9},J_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{I_{9},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^{A}1^{B}|\hat{g}|0^{I}1^{J}\rangle \langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle \langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{I_{9},J_{11}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(B_1, I_9, J_{11})\rangle =$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{1}}t_{I_{9},J_{11}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{B}|\hat{g}|0^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{1}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},I_{9},J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{B}|\hat{g}|0^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},B_{1},I_{9},J_{11})\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{1},B_{1}}t_{I_{9},J_{11}} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{B}|\hat{g}|0^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{1},B_{1}}t_{I_{9},J_{11}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}}t_{B_{1}}t_{I_{9},J_{11}} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{B}|\hat{g}|0^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}}t_{B_{1}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(I_7,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_1,I_7,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 0^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle t_{B_1} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,I_7,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_1 |\hat{0}_{\alpha}^+|A_9\rangle \langle B_0 |\hat{1}_{\alpha}^-|B_{11}\rangle \langle I_7 |\hat{0}_{\beta}^-|I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+|J_0\rangle t_{A_1} t_{I_7,J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_1, B_1, I_7, J_{13})\rangle =$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{1},B_{1}}t_{I_{7},J_{13}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{1}}t_{B_{1}}t_{I_{7},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(I_{10},J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{I_{10},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{B}|\hat{g}|1^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(B_{1},I_{10},J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{1}}t_{I_{10},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{B}|\hat{g}|1^{I}1^{J}\rangle\langle A_{0}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{B_{1}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{1},I_{10},J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}}t_{I_{10},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{B}|\hat{g}|1^{I}1^{J}\rangle\langle A_{1}|\hat{0}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{1}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_{10},J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_1,B_1}t_{I_{10},J_{11}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(I_8,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_0 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(B_1,I_8,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_0 |\hat{0}_{\alpha}^+ |A_9\rangle \langle B_1 |\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_8 |\hat{1}_{\beta}^- |I_0\rangle \langle J_{13} |\hat{1}_{\beta}^+ |J_0\rangle t_{B_1} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,I_8,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_1 |\hat{0}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle t_{A_1} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_1,B_1,I_8,J_{13})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1,B_1}t_{I_8,J_{13}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_1|\hat{0}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_1}t_{B_1}t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_9,J_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0 \rangle t_{A_2,B_2} t_{I_9,J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|0^I 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0 \rangle t_{A_2,B_2} t_{I_9,J_{12}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0 \rangle t_{A_2} t_{B_2} t_{I_9,J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|0^I 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_2 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0 \rangle t_{A_2} t_{B_2} t_{I_9,J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{3},I_{9},J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{2},B_{3}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{2},B_{3}}t_{I_{9},J_{12}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{2}}t_{B_{3}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{2}}t_{B_{3}}t_{I_{9},J_{12}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_2, I_9, J_{12})\rangle =$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{3},B_{2}}t_{I_{9},J_{12}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{3},B_{2}}t_{I_{9},J_{12}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{9},J_{12}}\\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|0^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_9,J_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_9|\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0 \rangle t_{A_3,B_3} t_{I_9,J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|0^I 0^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_9|\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0 \rangle t_{A_3,B_3} t_{I_9,J_{12}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_9|\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0 \rangle t_{A_3} t_{B_3} t_{I_9,J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|0^I 0^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_9|\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0 \rangle t_{A_3} t_{B_3} t_{I_9,J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_7,J_{14})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle t_{A_5,B_4}t_{I_7,J_{14}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^I0^J\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle t_{A_5,B_4}t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_7,J_{14})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_2,B_2}t_{I_7,J_{14}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_2}t_{B_2}t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_7,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle t_{A_2,B_3} t_{I_7,J_{14}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle t_{A_2} t_{B_3} t_{I_7,J_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_2, I_7, J_{14})\rangle =$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{3},B_{2}}t_{I_{7},J_{14}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{3}}t_{B_{2}}t_{I_{7},J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_7,J_{14})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle t_{A_3,B_3}t_{I_7,J_{14}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle t_{A_3}t_{B_3}t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_{10},J_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_2|\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2|\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0 \rangle t_{A_2,B_2} t_{I_{10},J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^I 0^J \rangle \langle A_2|\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2|\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0 \rangle t_{A_2,B_2} t_{I_{10},J_{12}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_2|\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2|\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0 \rangle t_{A_2} t_{B_2} t_{I_{10},J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^I 0^J \rangle \langle A_2|\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2|\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0 \rangle t_{A_2} t_{B_2} t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_{10},J_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0 \rangle t_{A_2,B_3} t_{I_{10},J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^I 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0 \rangle t_{A_2,B_3} t_{I_{10},J_{12}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0 \rangle t_{A_2} t_{B_3} t_{I_{10},J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^I 0^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0 \rangle t_{A_2} t_{B_3} t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_{10},J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{A_3,B_2}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^I0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{A_3,B_2}t_{I_{10},J_{12}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{A_3}t_{B_2}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^I0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{A_3}t_{B_2}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_{10},J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_3,B_3}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^I0^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_3,B_3}t_{I_{10},J_{12}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_3}t_{B_3}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^I0^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_3}t_{B_3}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_8,J_{14})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle t_{A_5,B_4}t_{I_8,J_{14}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|1^I0^J\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle t_{A_5,B_4}t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_8,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle t_{A_2,B_2} t_{I_8,J_{14}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle t_{A_2} t_{B_2} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_8,J_{14})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_2,B_3}t_{I_8,J_{14}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_3|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_2}t_{B_3}t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_8,J_{14})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle t_{A_3,B_2}t_{I_8,J_{14}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B0^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_8|\hat{1}^-_{\beta}|I_0\rangle\langle J_{14}|\hat{0}^+_{\beta}|J_0\rangle t_{A_3}t_{B_2}t_{I_8,J_{14}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_3, I_8, J_{14})\rangle =$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{3},B_{3}}t_{I_{8},J_{14}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{B}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{8},J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},I_{9},J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{2}}t_{I_{9},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|0^{I}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{2}}t_{I_{9},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1,I_9,J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_2,B_1}t_{I_9,J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^B|\hat{g}|0^I0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_2,B_1}t_{I_9,J_{12}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_2}t_{B_1}t_{I_9,J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^B|\hat{g}|0^I0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{12}|\hat{0}_{\alpha}^+|J_0\rangle t_{A_2}t_{B_1}t_{I_9,J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_9,J_{12})\rangle = \\ &+ \tfrac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{12} |\hat{0}^+_{\alpha}|J_0 \rangle t_{A_3} t_{I_9,J_{12}} \\ &+ \tfrac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^B |\hat{g}| 0^I 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{12} |\hat{0}^+_{\alpha}|J_0 \rangle t_{A_3} t_{I_9,J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{1},I_{9},J_{12})\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{3},B_{1}}t_{I_{9},J_{12}} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|0^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{3},B_{1}}t_{I_{9},J_{12}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{3}}t_{B_{1}}t_{I_{9},J_{12}} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|0^{I}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{3}}t_{B_{1}}t_{I_{9},J_{12}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, I_7, J_{14})\rangle =$$

$$+ \tfrac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I | \hat{g} | 1^B 0^J \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_7 | \hat{0}_{\beta}^- | I_0 \rangle \langle J_{14} | \hat{0}_{\beta}^+ | J_0 \rangle t_{A_2} t_{I_7,J_{14}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1,I_7,J_{14})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_2,B_1}t_{I_7,J_{14}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^B0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_2}t_{B_1}t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_7,J_{14})\rangle = \\ &+ \tfrac{1}{4} \sum_I \sum_J \langle 1^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_3 |\hat{1}^+_\alpha |A_9\rangle \langle B_0 |\hat{1}^-_\alpha |B_{11}\rangle \langle I_7 |\hat{0}^-_\beta |I_0\rangle \langle J_{14} |\hat{0}^+_\beta |J_0\rangle t_{A_3} t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{1},I_{7},J_{14})\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{3},B_{1}}t_{I_{7},J_{14}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{3}}t_{B_{1}}t_{I_{7},J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,I_{10},J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{A_2}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^B|\hat{g}|1^I0^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_{12}|\hat{0}^+_{\alpha}|J_0\rangle t_{A_2}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{1},I_{10},J_{12})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{2},B_{1}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|1^{I}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{2},B_{1}}t_{I_{10},J_{12}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{2}}t_{B_{1}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|1^{I}0^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{2}}t_{B_{1}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},I_{10},J_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{I}|\hat{g}|1^{B}0^{J}\rangle \langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{3}}t_{I_{10},J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{B}|\hat{g}|1^{I}0^{J}\rangle \langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{12}|\hat{0}_{\alpha}^{+}|J_{0}\rangle t_{A_{3}}t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_1,I_{10},J_{12})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|1^B 0^J \rangle \langle A_3|\hat{1}_{\alpha}^+ |A_9\rangle \langle B_1|\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0\rangle t_{A_3,B_1} t_{I_{10},J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^B |\hat{g}|1^I 0^J \rangle \langle A_3|\hat{1}_{\alpha}^+ |A_9\rangle \langle B_1|\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0\rangle t_{A_3,B_1} t_{I_{10},J_{12}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|1^B 0^J \rangle \langle A_3|\hat{1}_{\alpha}^+ |A_9\rangle \langle B_1|\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0\rangle t_{A_3} t_{B_1} t_{I_{10},J_{12}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^B |\hat{g}|1^I 0^J \rangle \langle A_3|\hat{1}_{\alpha}^+ |A_9\rangle \langle B_1|\hat{1}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{12}|\hat{0}_{\alpha}^+ |J_0\rangle t_{A_3} t_{B_1} t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,I_8,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 1^A 1^I |\hat{g}| 1^B 0^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle t_{A_2} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1,I_8,J_{14})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_2,B_1}t_{I_8,J_{14}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_2}t_{B_1}t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_8,J_{14})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 1^B 0^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{14} |\hat{0}^+_{\beta}|J_0 \rangle t_{A_3} t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_1,I_8,J_{14})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_3,B_1}t_{I_8,J_{14}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^B0^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{14}|\hat{0}_{\beta}^+|J_0\rangle t_{A_3}t_{B_1}t_{I_8,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_9,J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_2,B_2}t_{I_9,J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^I1^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_2,B_2}t_{I_9,J_{11}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_2}t_{B_2}t_{I_9,J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^I1^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_2}t_{B_2}t_{I_9,J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_9,J_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_2,B_3} t_{I_9,J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|0^I 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_2,B_3} t_{I_9,J_{11}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_2} t_{B_3} t_{I_9,J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|0^I 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_9 |\hat{0}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_2} t_{B_3} t_{I_9,J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_9,J_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_9|\hat{0}^-_{\alpha}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_3,B_2} t_{I_9,J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|0^I 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_9|\hat{0}^-_{\alpha}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_3,B_2} t_{I_9,J_{11}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_9|\hat{0}^-_{\alpha}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_3} t_{B_2} t_{I_9,J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|0^I 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_9|\hat{0}^-_{\alpha}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_3} t_{B_2} t_{I_9,J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_9,J_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_9|\hat{0}^-_{\alpha}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_3,B_3} t_{I_9,J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|0^I 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_9|\hat{0}^-_{\alpha}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_3,B_3} t_{I_9,J_{11}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_9|\hat{0}^-_{\alpha}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_3} t_{B_3} t_{I_9,J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|0^I 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_9|\hat{0}^-_{\alpha}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_3} t_{B_3} t_{I_9,J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_7,J_{13})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle t_{A_5,B_4}t_{I_7,J_{13}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A0^B|\hat{g}|0^I1^J\rangle\langle A_5|\hat{1}^+_{\beta}|A_9\rangle\langle B_4|\hat{0}^-_{\beta}|B_{11}\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle t_{A_5,B_4}t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_7,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle t_{A_2,B_2} t_{I_7,J_{13}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle t_{A_2} t_{B_2} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_7,J_{13})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle t_{A_2,B_3}t_{I_7,J_{13}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|0^B1^J\rangle\langle A_2|\hat{1}^+_{\alpha}|A_9\rangle\langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle\langle I_7|\hat{0}^-_{\beta}|I_0\rangle\langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle t_{A_2}t_{B_3}t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_7,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_7|\hat{0}^-_{\beta}|I_0\rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle t_{A_3,B_2} t_{I_7,J_{13}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_2|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_7|\hat{0}^-_{\beta}|I_0\rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle t_{A_3} t_{B_2} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_7,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_7|\hat{0}^-_{\beta}|I_0\rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle t_{A_3,B_3} t_{I_7,J_{13}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_7|\hat{0}^-_{\beta}|I_0\rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0\rangle t_{A_3} t_{B_3} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{2},I_{10},J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{2},B_{2}}t_{I_{10},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{B}|\hat{g}|1^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{2},B_{2}}t_{I_{10},J_{11}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{2}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{2}}t_{B_{2}}t_{I_{10},J_{11}} \end{split}$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A} 0^{B} | \hat{g} | 1^{I} 1^{J} \rangle \langle A_{2} | \hat{1}^{+}_{\alpha} | A_{9} \rangle \langle B_{2} | \hat{0}^{-}_{\alpha} | B_{11} \rangle \langle I_{10} | \hat{1}^{-}_{\alpha} | I_{0} \rangle \langle J_{11} | \hat{1}^{+}_{\alpha} | J_{0} \rangle t_{A_{2}} t_{B_{2}} t_{I_{10}, J_{11}} \langle I_{10} | \hat{I}^{-}_{\alpha} | I_{10} \rangle \langle I_{10} | \hat{I}^{-}_{\alpha} | I_{10} \rangle \langle I_{11} | \hat{I}^{+}_{\alpha} | I_{10} \rangle t_{A_{2}} t_{B_{2}} t_{I_{10}, J_{11}} \langle I_{10} | \hat{I}^{-}_{\alpha} | I_{10} \rangle \langle I_{11} | \hat{I}^{-}_{\alpha} | I_{10} \rangle \langle I_{11} | \hat{I}^{-}_{\alpha} | I_{10} \rangle t_{A_{2}} t_{B_{2}} t_{I_{10}, J_{11}} \langle I_{10} | \hat{I}^{-}_{\alpha} | I_{10} \rangle \langle I_{11} | \hat{I}^{-}_{\alpha} | I_{10} \rangle t_{A_{2}} t_{B_{2}} t_{I_{10}, J_{11}} \langle I_{10} | I_{10} | I_{10} \rangle t_{A_{2}} t_{A$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_{10},J_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_2,B_3} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^I 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_2,B_3} t_{I_{10},J_{11}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_2} t_{B_3} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^I 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_2} t_{B_3} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^I 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_2} t_{B_3} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^I 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_2} t_{B_3} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^I 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_2} t_{B_3} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^J 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_2} t_{B_3} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^J 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0 \rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0 \rangle t_{A_2} t_{B_3} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^J 1^J \rangle \langle A_2 |\hat{1}_{\alpha}^+ |A_9 \rangle \langle B_3 |\hat{0}_{\alpha}^- |B_{11} \rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0 \rangle \langle I_{11} |\hat{1}_{\alpha}^+ |I_0 \rangle t_{A_2} t_{B_3} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^J |\hat{0}_{\alpha} |\hat{0}_{\alpha$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_{10},J_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}_{\alpha}^+ |A_9\rangle \langle B_2|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^+ |J_0\rangle t_{A_3,B_2} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^I 1^J \rangle \langle A_3|\hat{1}_{\alpha}^+ |A_9\rangle \langle B_2|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^+ |J_0\rangle t_{A_3,B_2} t_{I_{10},J_{11}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}_{\alpha}^+ |A_9\rangle \langle B_2|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^+ |J_0\rangle t_{A_3} t_{B_2} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^I 1^J \rangle \langle A_3|\hat{1}_{\alpha}^+ |A_9\rangle \langle B_2|\hat{0}_{\alpha}^- |B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^- |I_0\rangle \langle J_{11}|\hat{1}_{\alpha}^+ |J_0\rangle t_{A_3} t_{B_2} t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_3,I_{10},J_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_3,B_3} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^I 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_3,B_3} t_{I_{10},J_{11}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_3} t_{B_3} t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^I 1^J \rangle \langle A_3|\hat{1}^+_{\alpha}|A_9\rangle \langle B_3|\hat{0}^-_{\alpha}|B_{11}\rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_3} t_{B_3} t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_8,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle t_{A_5,B_4} t_{I_8,J_{13}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^B |\hat{g}|1^I 1^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle t_{A_5,B_4} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_2,I_8,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle t_{A_2,B_2} t_{I_8,J_{13}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_2 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle t_{A_2} t_{B_2} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_3,I_8,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle t_{A_2,B_3} t_{I_8,J_{13}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_3 |\hat{0}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle t_{A_2} t_{B_3} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_2,I_8,J_{13})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_3,B_2}t_{I_8,J_{13}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|0^B1^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_2|\hat{0}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_3}t_{B_2}t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{3},I_{8},J_{13})\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{3},B_{3}}t_{I_{8},J_{13}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|0^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{3}|\hat{0}_{\alpha}^{-}|B_{11}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{3}}t_{B_{3}}t_{I_{8},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},I_{9},J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{2}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|0^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{2}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{1},I_{9},J_{11})\rangle = \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{2},B_{1}}t_{I_{9},J_{11}} \\ &+\frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|0^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{2},B_{1}}t_{I_{9},J_{11}} \\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{2}}t_{B_{1}}t_{I_{9},J_{11}} \end{split}$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A} 1^{B} | \hat{g} | 0^{I} 1^{J} \rangle \langle A_{2} | \hat{1}^{+}_{\alpha} | A_{9} \rangle \langle B_{1} | \hat{1}^{-}_{\alpha} | B_{11} \rangle \langle I_{9} | \hat{0}^{-}_{\alpha} | I_{0} \rangle \langle J_{11} | \hat{1}^{+}_{\alpha} | J_{0} \rangle t_{A_{2}} t_{B_{1}} t_{I_{9}, J_{11}}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},I_{9},J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{3}}t_{I_{9},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|0^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{9}|\hat{0}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{3}}t_{I_{9},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_1,I_9,J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_3,B_1}t_{I_9,J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^B|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_3,B_1}t_{I_9,J_{11}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_3}t_{B_1}t_{I_9,J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^B|\hat{g}|0^I1^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_9|\hat{0}_{\alpha}^-|I_0\rangle\langle J_{11}|\hat{1}_{\alpha}^+|J_0\rangle t_{A_3}t_{B_1}t_{I_9,J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,I_7,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 1^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_2 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle t_{A_2} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1,I_7,J_{13})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_2,B_1}t_{I_7,J_{13}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A0^I|\hat{g}|1^B1^J\rangle\langle A_2|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_7|\hat{0}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_2}t_{B_1}t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_7,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle t_{A_3} t_{I_7,J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_3, B_1, I_7, J_{13})\rangle =$$

$$\begin{split} &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{3},B_{1}}t_{I_{7},J_{13}}\\ &+\frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}0^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{7}|\hat{0}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{3}}t_{B_{1}}t_{I_{7},J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},I_{10},J_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{2}}t_{I_{10},J_{11}} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A}1^{B}|\hat{g}|1^{I}1^{J}\rangle \langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle \langle B_{0}|\hat{1}_{\alpha}^{-}|B_{11}\rangle \langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle \langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{2}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{2},B_{1},I_{10},J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{2},B_{1}}t_{I_{10},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|1^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{2},B_{1}}t_{I_{10},J_{11}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{2}}t_{B_{1}}t_{I_{10},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|1^{I}1^{J}\rangle\langle A_{2}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{2}}t_{B_{1}}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_{10},J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^B1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_3}t_{I_{10},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^A1^B|\hat{g}|1^I1^J\rangle\langle A_3|\hat{1}^+_{\alpha}|A_9\rangle\langle B_0|\hat{1}^-_{\alpha}|B_{11}\rangle\langle I_{10}|\hat{1}^-_{\alpha}|I_0\rangle\langle J_{11}|\hat{1}^+_{\alpha}|J_0\rangle t_{A_3}t_{I_{10},J_{11}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{3},B_{1},I_{10},J_{11})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{3},B_{1}}t_{I_{10},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|1^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{3},B_{1}}t_{I_{10},J_{11}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{3}}t_{B_{1}}t_{I_{10},J_{11}} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 1^{A}1^{B}|\hat{g}|1^{I}1^{J}\rangle\langle A_{3}|\hat{1}_{\alpha}^{+}|A_{9}\rangle\langle B_{1}|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_{10}|\hat{1}_{\alpha}^{-}|I_{0}\rangle\langle J_{11}|\hat{1}_{\alpha}^{+}|J_{0}\rangle t_{A_{3}}t_{B_{1}}t_{I_{10},J_{11}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_2, I_8, J_{13})\rangle =$$

$$+ \tfrac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I | \hat{g} | 1^B 1^J \rangle \langle A_2 | \hat{1}_{\alpha}^+ | A_9 \rangle \langle B_0 | \hat{1}_{\alpha}^- | B_{11} \rangle \langle I_8 | \hat{1}_{\beta}^- | I_0 \rangle \langle J_{13} | \hat{1}_{\beta}^+ | J_0 \rangle t_{A_2} t_{I_8,J_{13}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_2,B_1,I_8,J_{13})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^B1^J\rangle\langle A_2|\hat{1}_{\alpha}^{+}|A_9\rangle\langle B_1|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle t_{A_2,B_1}t_{I_8,J_{13}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^B1^J\rangle\langle A_2|\hat{1}_{\alpha}^{+}|A_9\rangle\langle B_1|\hat{1}_{\alpha}^{-}|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^{-}|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_0\rangle t_{A_2}t_{B_1}t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,I_8,J_{13})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_3 |\hat{1}^+_{\alpha}|A_9 \rangle \langle B_0 |\hat{1}^-_{\alpha}|B_{11} \rangle \langle I_8 |\hat{1}^-_{\beta}|I_0 \rangle \langle J_{13} |\hat{1}^+_{\beta}|J_0 \rangle t_{A_3} t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_3,B_1,I_8,J_{13})\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^B1^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_3,B_1}t_{I_8,J_{13}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 1^A1^I|\hat{g}|1^B1^J\rangle\langle A_3|\hat{1}_{\alpha}^+|A_9\rangle\langle B_1|\hat{1}_{\alpha}^-|B_{11}\rangle\langle I_8|\hat{1}_{\beta}^-|I_0\rangle\langle J_{13}|\hat{1}_{\beta}^+|J_0\rangle t_{A_3}t_{B_1}t_{I_8,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_6,B_{15},I_{14},J_7)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A0^I|\hat{g}|1^B0^J\rangle\langle A_6|\hat{0}^-_{\beta}|A_9\rangle\langle B_{15}|\hat{1}^+_{\beta}|B_{11}\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_6,B_{15}}t_{I_{14},J_7} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A1^B|\hat{g}|0^I0^J\rangle\langle A_6|\hat{0}^-_{\beta}|A_9\rangle\langle B_{15}|\hat{1}^+_{\beta}|B_{11}\rangle\langle I_{14}|\hat{0}^+_{\beta}|I_0\rangle\langle J_7|\hat{0}^-_{\beta}|J_0\rangle t_{A_6,B_{15}}t_{I_{14},J_7} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_6,B_{15},I_{14},J_8)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_6 |\hat{0}^-_{\beta} |A_9 \rangle \langle B_{15} |\hat{1}^+_{\beta} |B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta} |I_0 \rangle \langle J_8 |\hat{1}^-_{\beta} |J_0 \rangle t_{A_6,B_{15}} t_{I_{14},J_8} \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^B |\hat{g}| 0^I 1^J \rangle \langle A_6 |\hat{0}^-_{\beta} |A_9 \rangle \langle B_{15} |\hat{1}^+_{\beta} |B_{11} \rangle \langle I_{14} |\hat{0}^+_{\beta} |I_0 \rangle \langle J_8 |\hat{1}^-_{\beta} |J_0 \rangle t_{A_6,B_{15}} t_{I_{14},J_8} \end{split}$$

$$\langle (A_9, B_{11}) | \hat{H} | (A_6, B_{15}, I_{13}, J_7) \rangle =$$

$$+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I | \hat{g} | 1^B 0^J \rangle \langle A_6 | \hat{0}_{\beta}^- | A_9 \rangle \langle B_{15} | \hat{1}_{\beta}^+ | B_{11} \rangle \langle I_{13} | \hat{1}_{\beta}^+ | I_0 \rangle \langle J_7 | \hat{0}_{\beta}^- | J_0 \rangle t_{A_6, B_{15}} t_{I_{13}, J_7}$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^B | \hat{g} | 1^I 0^J \rangle \langle A_6 | \hat{0}^-_{\beta} | A_9 \rangle \langle B_{15} | \hat{1}^+_{\beta} | B_{11} \rangle \langle I_{13} | \hat{1}^+_{\beta} | I_0 \rangle \langle J_7 | \hat{0}^-_{\beta} | J_0 \rangle t_{A_6, B_{15}} t_{I_{13}, J_7}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_6,B_{15},I_{13},J_8)\rangle = \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 1^I|\hat{g}|1^B 1^J\rangle\langle A_6|\hat{0}^-_{\beta}|A_9\rangle\langle B_{15}|\hat{1}^+_{\beta}|B_{11}\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_6,B_{15}}t_{I_{13},J_8} \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^A 1^B|\hat{g}|1^I 1^J\rangle\langle A_6|\hat{0}^-_{\beta}|A_9\rangle\langle B_{15}|\hat{1}^+_{\beta}|B_{11}\rangle\langle I_{13}|\hat{1}^+_{\beta}|I_0\rangle\langle J_8|\hat{1}^-_{\beta}|J_0\rangle t_{A_6,B_{15}}t_{I_{13},J_8} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_6,B_{15},I_7,J_{14})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_6 |\hat{0}^-_{\beta}|A_9 \rangle \langle B_{15}|\hat{1}^+_{\beta}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{14}|\hat{0}^+_{\beta}|J_0 \rangle t_{A_6,B_{15}} t_{I_7,J_{14}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^B |\hat{g}|0^J 0^I \rangle \langle A_6 |\hat{0}^-_{\beta}|A_9 \rangle \langle B_{15}|\hat{1}^+_{\beta}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{14}|\hat{0}^+_{\beta}|J_0 \rangle t_{A_6,B_{15}} t_{I_7,J_{14}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{6},B_{15},I_{8},J_{14})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{B}0^{J}\rangle\langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{6},B_{15}}t_{I_{8},J_{14}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{B}|\hat{g}|0^{J}1^{I}\rangle\langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{14}|\hat{0}_{\beta}^{+}|J_{0}\rangle t_{A_{6},B_{15}}t_{I_{8},J_{14}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_6,B_{15},I_7,J_{13})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_6 |\hat{0}^-_{\beta}|A_9 \rangle \langle B_{15}|\hat{1}^+_{\beta}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0 \rangle t_{A_6,B_{15}} t_{I_7,J_{13}} \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^B |\hat{g}| 1^J 0^I \rangle \langle A_6 |\hat{0}^-_{\beta}|A_9 \rangle \langle B_{15}|\hat{1}^+_{\beta}|B_{11} \rangle \langle I_7 |\hat{0}^-_{\beta}|I_0 \rangle \langle J_{13}|\hat{1}^+_{\beta}|J_0 \rangle t_{A_6,B_{15}} t_{I_7,J_{13}} \end{split}$$

$$\begin{split} &\langle (A_{9},B_{11})|\hat{H}|(A_{6},B_{15},I_{8},J_{13})\rangle = \\ &+ \frac{-1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{I}|\hat{g}|1^{B}1^{J}\rangle\langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{6},B_{15}}t_{I_{8},J_{13}} \\ &+ \frac{1}{4}\sum_{I}\sum_{J}\langle 0^{A}1^{B}|\hat{g}|1^{J}1^{I}\rangle\langle A_{6}|\hat{0}_{\beta}^{-}|A_{9}\rangle\langle B_{15}|\hat{1}_{\beta}^{+}|B_{11}\rangle\langle I_{8}|\hat{1}_{\beta}^{-}|I_{0}\rangle\langle J_{13}|\hat{1}_{\beta}^{+}|J_{0}\rangle t_{A_{6},B_{15}}t_{I_{8},J_{13}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_5, B_4, I_{12}, J_9)\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^{A} 0^{I} | \hat{g} | 0^{B} 0^{J} \rangle \langle A_{5} | \hat{1}^{+}_{\beta} | A_{9} \rangle \langle B_{4} | \hat{0}^{-}_{\beta} | B_{11} \rangle \langle I_{12} | \hat{0}^{+}_{\alpha} | I_{0} \rangle \langle J_{9} | \hat{0}^{-}_{\alpha} | J_{0} \rangle t_{A_{5}, B_{4}} t_{I_{12}, J_{9}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_{12},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha}|I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha}|J_0 \rangle t_{A_5,B_4} t_{I_{12},J_{10}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_{11},J_9)\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}| 0^B 0^J \rangle \langle A_5 |\hat{1}^+_{\beta}| A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}| B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}| I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha}| J_0 \rangle t_{A_5,B_4} t_{I_{11},J_9} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_{11},J_{10})\rangle = \\ &+ \frac{-1}{4} \sum_I \sum_J \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha}|I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha}|J_0 \rangle t_{A_5,B_4} t_{I_{11},J_{10}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_6, B_{15}, I_{12}, J_9)\rangle =$$

$$+\frac{1}{4}\sum_{I}\sum_{J}\langle 0^A 0^I|\hat{g}|1^B 0^J\rangle \langle A_6|\hat{0}^-_{\beta}|A_9\rangle \langle B_{15}|\hat{1}^+_{\beta}|B_{11}\rangle \langle I_{12}|\hat{0}^+_{\alpha}|I_0\rangle \langle J_9|\hat{0}^-_{\alpha}|J_0\rangle t_{A_6, B_{15}}t_{I_{12}, J_9}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_6, B_{15}, I_{12}, J_{10})\rangle =$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_6 |\hat{0}^-_{\beta} |A_9 \rangle \langle B_{15} |\hat{1}^+_{\beta} |B_{11} \rangle \langle I_{12} |\hat{0}^+_{\alpha} |I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha} |J_0 \rangle t_{A_6, B_{15}} t_{I_{12}, J_{10}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_6,B_{15},I_{11},J_9)\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 0^J \rangle \langle A_6 |\hat{0}^-_{\beta} |A_9 \rangle \langle B_{15} |\hat{1}^+_{\beta} |B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha} |I_0 \rangle \langle J_9 |\hat{0}^-_{\alpha} |J_0 \rangle t_{A_6,B_{15}} t_{I_{11},J_9} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_6, B_{15}, I_{11}, J_{10})\rangle =$$

$$+\frac{1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|1^B 1^J \rangle \langle A_6 |\hat{0}^-_{\beta} |A_9 \rangle \langle B_{15} |\hat{1}^+_{\beta} |B_{11} \rangle \langle I_{11} |\hat{1}^+_{\alpha} |I_0 \rangle \langle J_{10} |\hat{1}^-_{\alpha} |J_0 \rangle t_{A_6, B_{15}} t_{I_{11}, J_{10}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_9,J_{12})\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 1^A 0^I |\hat{g}|0^B 0^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{12} |\hat{0}^+_{\alpha}|J_0 \rangle t_{A_5,B_4} t_{I_9,J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_{10},J_{12})\rangle = \\ &+ \frac{1}{4} \sum_I \sum_J \langle 1^A 1^I |\hat{g}|0^B 0^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_{12}|\hat{0}^+_{\alpha}|J_0 \rangle t_{A_5,B_4} t_{I_{10},J_{12}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_9,J_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 0^I |\hat{g}|0^B 1^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{11} |\hat{1}^+_{\alpha}|J_0 \rangle t_{A_5,B_4} t_{I_9,J_{11}} \end{split}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_5,B_4,I_{10},J_{11})\rangle = \\ &+ \frac{1}{4} \sum_{I} \sum_{J} \langle 1^A 1^I |\hat{g}|0^B 1^J \rangle \langle A_5 |\hat{1}^+_{\beta}|A_9 \rangle \langle B_4 |\hat{0}^-_{\beta}|B_{11} \rangle \langle I_{10}|\hat{1}^-_{\alpha}|I_0 \rangle \langle J_{11}|\hat{1}^+_{\alpha}|J_0 \rangle t_{A_5,B_4} t_{I_{10},J_{11}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_6, B_{15}, I_9, J_{12})\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 0^J \rangle \langle A_6 |\hat{0}^-_{\beta} |A_9\rangle \langle B_{15} |\hat{1}^+_{\beta} |B_{11}\rangle \langle I_9 |\hat{0}^-_{\alpha} |I_0\rangle \langle J_{12} |\hat{0}^+_{\alpha} |J_0\rangle t_{A_6, B_{15}} t_{I_9, J_{12}}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_6, B_{15}, I_{10}, J_{12})\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}|1^B 0^J \rangle \langle A_6 |\hat{0}_{\beta}^- |A_9\rangle \langle B_{15} |\hat{1}_{\beta}^+ |B_{11}\rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0\rangle \langle J_{12} |\hat{0}_{\alpha}^+ |J_0\rangle t_{A_6, B_{15}} t_{I_{10}, J_{12}}$$

$$\begin{split} &\langle (A_9,B_{11})|\hat{H}|(A_6,B_{15},I_9,J_{11})\rangle = \\ &+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 0^I |\hat{g}| 1^B 1^J \rangle \langle A_6 |\hat{0}^-_{\beta}|A_9 \rangle \langle B_{15} |\hat{1}^+_{\beta}|B_{11} \rangle \langle I_9 |\hat{0}^-_{\alpha}|I_0 \rangle \langle J_{11} |\hat{1}^+_{\alpha}|J_0 \rangle t_{A_6,B_{15}} t_{I_9,J_{11}} \end{split}$$

$$\langle (A_9, B_{11})|\hat{H}|(A_6, B_{15}, I_{10}, J_{11})\rangle =$$

$$+ \frac{-1}{4} \sum_{I} \sum_{J} \langle 0^A 1^I |\hat{g}| 1^B 1^J \rangle \langle A_6 |\hat{0}_{\beta}^- |A_9\rangle \langle B_{15} |\hat{1}_{\beta}^+ |B_{11}\rangle \langle I_{10} |\hat{1}_{\alpha}^- |I_0\rangle \langle J_{11} |\hat{1}_{\alpha}^+ |J_0\rangle t_{A_6, B_{15}} t_{I_{10}, J_{11}}$$